REPORT

OF THE

MEDICAL OFFICER OF HEALTH

ON THE

HEALTH

OF THE

CITY OF BIRMINGHAM

FOR THE YEAR **1905.**

BIRMINGHAM:

PERCIVAL JONES LIMITED, TOWN HALL PRINTING OFFICES, EDMUND STREET.

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HEALTH DEPARTMENT.

THE COUNCIL HOUSE, BIRMINGHAM.

June 9th, 1906.

TO THE CHAIRMAN AND MEMBERS OF THE HEALTH COMMITTEE.

GENTLEMEN,

I herewith submit the Report on the public health statistics of the City of Birmingham for the year ending December 30th, 1905, in compliance with the requirements of the Local Government Board.

In the Report for 1904 I was able to say that on the whole the statistics for that year might be considered as relatively satisfactory. I am glad to go further this year and to say that the statistics as a whole for 1905 may be considered very satisfactory.

The death-rate of 16·1 per 1,000 is the lowest on record. Not only is the death-rate a record one, but the rates from many of the individual causes of death were records. In this respect the zymotic mortality rate was lower than had previously been observed, and also the death-rate from Typhoid Fever, while the mortality from Phthisis was among the lowest ever recorded.

There can be but little doubt that the lessened mortality during 1905 was largely due to the healthier conditions under which people now live; but while this is the case, it is equally certain that the whole of the reduction is not due to this cause, but that a certain part of it resulted from the favourable climatic conditions which existed during the greater part of the year.

It is certain from the statistics, even for this most favourable year, that a very large number of the deaths, and probably a good deal of the sickness, was due to carelessness and ignorance, particularly in regard to the feeding and rearing of young infants. Of every 1,000 babies who were born during the year, no less than 155 died. With a rapidly declining birth-rate all over the country it is of national importance that this wastage of human life should be stopped. A very large number of means have been taken by the Health Committee with a view to limiting the infant mortality. These must be to a very large extent educational, and their operation is of necessity slow in producing results. Personally, I have not the slightest doubt that the work which has been put in hand will give rise to good results in time.

During the past year an additional means of combating infant mortality became available in the operation of the Midwives Act. Indirectly it is probable that the administration of this Act will enable the Sanitary Authority to ensure that reasonable instructions are given by midwives to working class mothers as to how their children should be fed and reared.

A commencement was made during the year under review with the voluntary notification of Phthisis, and I have great pleasure in being able to say that up to the present the medical men in Birmingham have loyally supported the Health Committee in their request for the notification of suitable cases. This must be recognised as a first step in the direct attack on the disease which causes more sickness and expense, and a larger number of deaths, than any other single disease which we suffer from.

No important change was made in the Staff of the Health Department during the year, and I have pleasure in reporting that the work generally has been carried on in a satisfactory manner by all the members of the Staff.

I am, Gentlemen,

Your obedient Servant,

JOHN ROBERTSON, M.D., B.Sc

POPULATION.

Population

The correct estimation of the population of Birmingham every year is a matter of the greatest importance to the sanitary welfare of the city, because it is only possible to compare our rates of sickness and death with those of bygone years, provided the statistics are founded on correct information as to the number of people living in the city. At the risk of a charge of annual reiteration, it is well in a report like this to constantly keep in mind the difficulty there is in correctly estimating the number of people living in Birmingham during any particular year, especially when a considerable number of years have elapsed since the last census. Five years have now intervened since the census of 1901 was taken, and already there are evidences that our estimates, based upon the usual methods, are slightly too high and that, therefore, the sickness rates and mortality rates are correspondingly lower than they ought to be.

By the Registrar-General's method it is calculated that the number of people living in Birmingham at the middle of the year 1905 (June 30th) was 542,959, showing an increase of 4,994 during the preceding 12 months (*i.e.*, at the rate of 0·93 per cent.). If the same relative number of males and females obtains as at the taking of the census, then in 1905 there were in Birmingham 262,103 males and 280,856 females; that is, an excess of females over males of 18,753. The above population is used as the basis for the calculations in this report, and also by the Registrar-General in his report.

Possible error in estimated population.

It is well, however, to apply some tests in order to ascertain whether these figures are approximately correct. At the time of taking the census in 1901 there were ascertained by the Overseers to be 109,963 houses occupied, and the census showed that there were 522,204 persons living in Birmingham, equal to 4·75 persons per occupied house. During the year 1905 there were ascertained to be 111,636 houses occupied. Assuming that the same number of persons occupied each house, *i.e.*, 4·75, then the total

population of Birmingham would be 530,271 in the middle of 1905, or nearly 13,000 less than the Registrar-General's estimate. Again, it may be assumed that within a certain amount the increase or the decrease in the birth-rate annually is a limited one. Since 1901 the birth-rate has been as follows:—32·1, 31·9, 31·7, 31·5, then during 1905 it has dropped to 29·2. Possibly some of this persistent decrease is due to a slight over-estimation in our population.

Migration to suburbs.

In the last annual report the fact was pointed out that every year there is an increase in migration from Birmingham to districts outside the city boundary in order to get into better country and healthier surroundings. It is most desirable that this spreading of the population should take place, but it vitiates some of our statistics by leaving the city to deal with the less vigorous part of the population.

The growth of the surrounding suburbs is entirely due to this migration, which, among other features, is preventing Birmingham from being put in its proper place among the other great towns of this country as judged by its death-rate. Birmingham population proper, including suburbs, is probably greater than that of any other provincial city.

Occupied houses in each ward.

In the table on the opposite page is set out the number of occupied houses in the several wards during the ten years 1896 to 1905. In the last column will be found the increase or decrease in the number of inhabited houses in each ward during the ten years.

During the year 1905 the increase of occupied houses in the whole city over the preceding year was only 27. Again, when we take the annual increase during the five years, 1900 to 1905, the average increase in the number of houses occupied was 412, while during the preceding four years, 1897 to 1900, it was 2,180.

OCCUPIED HOUSES.

Ward.	1896	1897	1898	1899	1900	1901	1902	1903	1904	1905	Increase or Decrease in 10 years.
Rotton Park	8354	8615	8739	9079	9442	10199	10041	10215	10383	10573	+ 2219
All Saints'	7827	7853	8075	8549	9028	8847	8939	8996	9195	9024	+ 1197
Ladywood	5703	5692	5605	5639	5645	5627	5634	5662	5669	5570	- 133
St. Paul's	3762	3718	3688	3650	3630	3187	3316	3318	3341	3314	- 448
St. George's	4577	4572	4585	4670	4632	4572	4623	4618	4621	4604	+ 27
St. Stephen's	4749	4741	4864	4913	4882	4963	4952	4962	4930	4861	+ 112
St. Mary's...	3174	3262	3205	3230	3237	3308	3325	3378	3297	3233	+ 59
St. Bartholomew's ...	5195	5134	5119	5315	5326	5297	5301	5241	5089	4884	- 311
Market Hall	2429	2363	2362	2372	2335	2109	2094	2075	2005	1980	- 449
St. Thomas'	4050	4056	4030	4088	4170	4201	4067	4061	4106	4062	+ 12
St. Martin's	5150	5163	5170	5216	5260	5220	5250	5233	5331	5373	+ 223
Edgbaston and Harborne	5734	5863	6056	6289	6373	6386	6473	6496	6491	6432	+ 698
Deritend	5269	5305	5415	5370	5248	5232	5194	5101	5118	5026	- 243
Bordesley	9412	10231	10869	11179	11514	11703	11907	12168	11905	12519	+ 3107
Duddeston	4795	4921	5240	5082	5132	5060	5026	4977	4958	4946	+ 151
Nechells	6757	6771	6869	7036	7021	7012	6955	7023	6947	6841	+ 84
Balsall Heath	8200	8250	8419	8547	8650	8700	8750	8825	9000	9061	+ 861
Saltley	5720	6188	6764	7242	8053	8340	8715	8960	9223	9333	+ 3613
City...	100857	102698	105074	107466	109578	109963	110562	111309	111609	111636	+10779

Some rather interesting information is given in the table just referred to.

In the better class residential district of Edgbaston and Harborne, there were 59 fewer houses occupied in 1905 than in 1904; in All Saints' Ward there were no less than 171 fewer houses occupied in 1905 than in 1904; in Ladywood Ward there were 99 fewer; in St. Paul's there were 27 fewer; in St. George's there were 17 fewer: in St. Stephen's Ward 69 fewer; in St. Mary's 64 fewer; in St. Bartholomew's 205 fewer; in Market Hall Ward 25 fewer; in St. Thomas' 44 fewer; in Deritend 92 fewer; in Duddeston 12; in Nechells 106. The only wards in which there was an actual increase in the number of occupied houses in 1905 as compared with 1904 were: Saltley, Balsall Heath, Bordesley, St. Martin's, and Rotton Park.

There can, therefore, be but little doubt that the number of houses occupied during the past few years in most of the wards is declining, and this is probably due to the sensible desire which is arising of spreading the population over a much larger area, for when the population of the districts lying around Birmingham is considered, it is recognised at once to be an overflow population. (See page 16.)

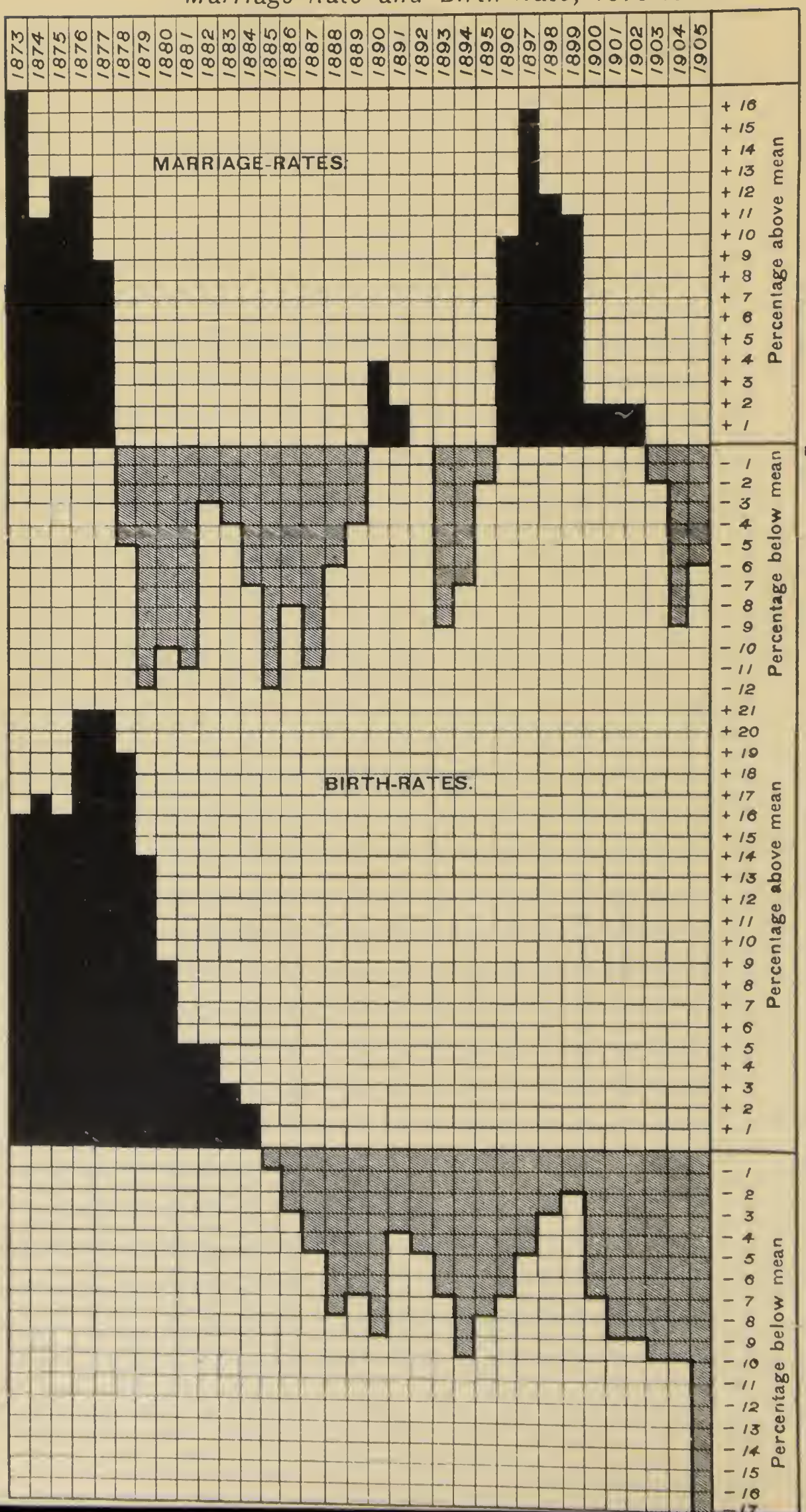
Populations and areas of wards.

Distribution of Population in Wards.—In the following table is set out the residential population in each ward, *i.e.*, exclusive of the people living in large institutions, together with the acreage and the number of persons per acre.

WARD.	Area in Acres.	Population 1905.	Persons per Acre.
Rotton Park ...	1,233	48,530	39·4
All Saints	532	42,232	79·4
Ladywood	249	24,842	99·8
St. Paul's	264	15,543	58·9
St. George's	120	20,350	169·6
St. Stephen's	169	23,284	137·8
St. Mary's	184	15,551	84·5
St. Bartholomew's	313	24,762	79·1
Market Hall	229	9,049	39·5
St. Thomas'	179	18,563	103·7
St. Martin's	468	24,662	52·7
Edgbaston and Harborne ...	3,407	31,002	9·1
Deritend	279	23,723	85·0
Bordesley	1,387	58,464	42·2
Duddeston	299	23,395	78·2
Nechells	512	32,837	64·1
Balsall Heath	463	40,412	87·3
Saltley	2,352	47,318	20·1
Whole City	12,639	542,959	43·0

CHART No. 1.

Marriage-Rate and Birth-Rate, 1873-1905.



MARRIAGES.

Marriage-rate.

The number of people married in Birmingham in 1905 was 9,488, compared with 9,250 in the previous year, representing 4,744 marriages. This is equivalent to a marriage-rate of 17·5 persons married per 1,000 of the population as compared with 17·2 in 1904, and 18·4 in 1903. In London the marriage-rate during 1905 was 16·9.

In the chart No. 1 it will be noted that the marriage-rate as compared with those in the previous years still continues to be below the mean. The rate for London is also progressively declining since 1870.

BIRTHS.

Birth-rate.

There are 15,795 births registered during 1905 as compared with 16,902 in the preceding year, and 16,866 in 1903. The rate per 1,000 of the population was, therefore, 29·2, which is considerably lower than in any other year since 1873, as will be seen in the following table :—

Year.	Birth-rate.	Year.	Birth-rate.	Year.	Birth-rate.
1873	40·8	1884	35·9	1895	32·3
1874	41·2	1885	34·9	1896	32·5
1875	40·6	1886	34·2	1897	33·2
1876	42·5	1887	33·2	1898	34·0
1877	42·4	1888	32·4	1899	34·3
1878	41·7	1889	32·7	1900	32·7
1879	40·0	1890	32·1	1901	32·1
1880	38·3	1891	33·8	1902	31·9
1881	37·0	1892	33·2	1903	31·7
1882	36·8	1893	32·6	1904	31·5
1883	36·1	1894	31·6	1905	29·2

Birth-rates in other large towns.

In other large towns the birth-rates for 1905 were as follows :—

London..	27·1
Liverpool	33·3
Manchester	29·5
Leeds	27·1
Sheffield	29·8
Bristol	27·0
Bradford	21·1
West Ham	30·7
Hull	30·1
Nottingham	26·5
Salford	30·7
Newcastle	32·1
Leicester	25·9

Among the 76 great towns the birth-rate varied from 16·8 to 38·3. In Merthyr Tydfil it was 38·3 ; in Rhondda, 37·5 ; in St. Helens, 36·2 ; in Middlesbrough, 35·0 ; and in Sunderland 34·4, while the lowest rates were 16·8 in Bournemouth, 17·7 in Hastings, 18·5 in Hornsey, 19·2 in Halifax, and 20·9 in Northampton.

Birth-rates in Birmingham and England and Wales.

The mean birth-rate at each of the last four census periods and during 1905 is set out for England and Wales and for Birmingham in the following table :—

	Birmingham.	England and Wales.
1870—2	39·3 ...	35·3
1880—2	37·4 ...	34·0
1890—2	33·0 ...	30·7
1900—2	32 2 ...	28·6
1905	29·2 ...	27·2

All of the above birth-rates are calculated as rates per 1,000 of the whole population. It is obvious that if the population in one town contains a much larger proportion of males or of women before or after the child-bearing period this particular age and sex distribution will materially vitiate any comparison with other communities. The question then arises as to whether the recorded birth-rate in Birmingham is strictly comparable with those of England and Wales and of other great towns.

Corrected birth-rates.

Enquiry into the relative age and sex distribution of the population shows that in Birmingham the proportion of married women aged from 15 to 45 years is much larger than in England and Wales as a whole. Consequently it is natural for Birmingham to have a higher birth-rate simply on this account. The figures below indicate what the birth-rate would have been if the proportion of married women at child-bearing ages had been the same in Birmingham as in England and Wales as a whole :—

	Corrected Birth-rate in Birmingham.	Birth-rate in England and Wales.
1870—2	34·8 ...	35·3
1880—2	33·6 ...	34·0
1890—2	30·0 ...	30·7
1900—2	28·9 ...	28·6

It will be seen that when allowance is made for the difference in the number of married women the Birmingham birth-rate approximates very nearly to that of the country at large. No doubt the different age and sex constitution in other great towns, and even in the various wards in our own town, accounts for some part of the disparity in their birth-rates; hence it is necessary to use their crude birth-rates for comparative purposes with a good deal of reserve.

In the next table are shown the birth-rates for Birmingham per 1,000 women at ages 15-45 years, with the comparable figures for England and Wales.

PROPORTION OF TOTAL BIRTHS PER 1,000 WOMEN AT AGES 15 TO 45 YEARS.

	Birmingham.	England and Wales.
1870–2	160·3	153·7
1880—2	154·4	147·7
1890—2	134·4	129·7
1900—2	123·9	114·8

Decline in birth-rate.

The great outstanding fact is that the birth-rate of Birmingham has decreased in thirty years by 18 per cent.; that an almost identical decrease has taken place in England and Wales as a whole and in most of its constituent districts; that a somewhat similar decrease is taking place in other civilised countries, and particularly in the great towns. In many of our own colonies the birth-rate is as low or lower than it is at home. In France during 1904 the birth-rate was only 20·9 per 1,000, while the death-rate in that country was 19·4 per 1,000. In Ireland during 1904 the birth-rate was 23·6 per 1,000. In Australia and New Zealand very low birth-rates maintain, but here the death-rate is remarkably low, averaging not more than 12 per 1,000.

Causes of decline in birth-rate.

What are the causes of this great diminution in the birth-rate? The Registrar-General in his report on the statistics for 1904 says: "Broadly speaking, it may be said that approximately 70 per cent. of the decrease in the birth-rate during the past 35 years results from decreased fertility of married women, about 10 per cent. may be ascribed to the decrease of illegitimacy, while the remaining 20 per cent. is due to the decrease in the proportion of married women in the female population of conceptive ages."

Some of the causes of this diminished birth-rate appear certainly to be degenerations. Others are avoidable, while others are distinctly beneficial. The fact that illegitimate births have diminished in England and Wales from 17 per 1,000 unmarried women between the ages of 15 and 45 in 1870 to 8·4 per 1,000 in 1904 is distinctly a sign of improvement. The later ages at which marriages are contracted now-a-days than formerly has a distinct effect in lowering the birth-rate. It has been shown by many observers, and by Dr. C. J. Lewis in his recent work, that marriages which take place when the wives are between the ages of 20 and 24 are much more fertile than those taking place between the ages of 25 and 29. Of wives at the former age 98 per cent. bear children, while of those marrying at the later age only 77½ per cent. have any children subsequently.

Causes of decline in birth-rate (*continued*)

Locally we have no statistics to indicate the fact that marriages are taking place at later ages, but it is recognised by all that postponement of marriage is general. In the great majority of cases this postponement is a result of the tendency to luxurious living which exists in all classes of the population. Both young men and women now require to spend on themselves to gratify their own pleasures so much money that it is impossible for them to establish a home of their own at as early an age as was formerly the case.

In further support of the contention that the increase in age at marriage hinders women from having children there is the fact that the same sets of conditions are apparently in operation in preventing women from being able to nurse their children. A very large number of the middle and working classes in this country now allege with a certain amount of truth that they cannot suckle their infants. Possibly this is due to the same causes which lessen fertility, owing to the later age at which they marry.

There is undoubtedly another great and growing evil also due to the desire for self indulgence, viz., the use of artificial means to prevent conception and the use of abortifacients by young married women. The open and callous manner in which both of these practices are advertised is most reprehensible, and the difficulties in stopping them are so great at present that practically they go on without any check. A good many lives of mothers are seriously endangered every year by the use of abortifacients. It cannot be too strongly realised by the working classes that the best asset which they can possess lies in their families, and it is therefore amongst them that it is desirable to stop the particularly pernicious habits which have ruined so many other nations in times gone by.

If comfort alone were taken into consideration all classes are benefitted in their old age by having families. There is nothing which self-indulgent people suffer from more than the absence of a family when they are old.

The Registrar-General also points out that the birth-rate depends to some extent upon variations in the age constitution of married women. On looking into the Birmingham figures it is found that while the number of marriageable women in the population has increased as is indicated below, the number of wives at the same ages has remained practically stationary.

PROPORTION OF WOMEN AGED 15-45 YEARS TO TOTAL POPULATION.

1871	245 per 1,000.
1881	242 "
1891	247 "
1901	262 "

PROPORTION OF WIVES AGED 15-45 YEARS TO TOTAL POPULATION.

1871	128 per 1,000.
1881	125 "
1891	121 "
1901	127 "

Birth-rates in wards.

The birth-rate in the various wards in the city will be found in the following table, where it will be noted that in our good residential district of Edgbaston the birth-rate last year was 19·7 per 1,000 as compared with 36·3 in Nechells, 34·9 in Deritend, 34·8 in St. Stephen's, &c.

BIRTH-RATE PER 1,000.

	1904.	1905.
Rotton Park	31·7	28·3
All Saints'	32·5	32·1
Ladywood	32·5	28·9
St. Paul's	27·6	26·1
St. George's	37·7	33·9
St. Stephen's	37·8	34·8
St. Mary's	26·9	27·2
St. Bartholomew's	37·4	34·6
Market Hall	21·6	23·8
St. Thomas'	31·6	29·5
St. Martin's	28·7	24·4
Edgbaston and Harborne	19·4	19·7
Deritend	35·3	34·9
Bordesley	30·8	27·5
Duddeston	37·2	33·8
Nechells	36·3	36·3
Balsall Heath	27·1	27·0
Saltley	35·0	32·2

MASCULINITY.

Masculinity.

Of the 15,795 children born in Birmingham during 1905, 7,989 were males, and 7,806 females, that is, a proportion of 1,023 males to every 1,000 females. In 1873 the proportion was 1,026 males to 1,000 females. It is interesting to note that the number of male children born is almost always larger than that of females. The death-rate, however, is so much heavier amongst males in the earlier years of life that the proportion of males to females is very soon altered.

DEATHS.

Death-rate.

The deaths of 8,718 persons belonging to Birmingham were registered during 1905. This is equivalent to a mortality-rate of 16·1 per 1,000, as compared with 19·3 per 1,000 in 1904, and 17·2 in 1903. The reduction in the

Death-rate (*continued*)

death-rate during the year 1905 as compared with the previous year was therefore equal to 3·2 per 1,000. Among males the mortality was 17·6 per 1,000, and among females 14·6 per 1,000. During the previous year the figure for males was 21·0 per 1,000, and for females 17·6. For several years the difference between the death-rate in males and females has amounted to about 3 per 1,000.

The appended table shows the death-rate for each year since 1871, together with the mean rate in five-yearly periods. When these averages are compared the rather remarkable fact is brought out that for about 20 years—1881-1900—the death-rate did not vary much. It is therefore all the more gratifying that within the last five years there should be distinct evidence of a downward tendency in the rate. The actual death-rates for these years are set out in chart No. 2.

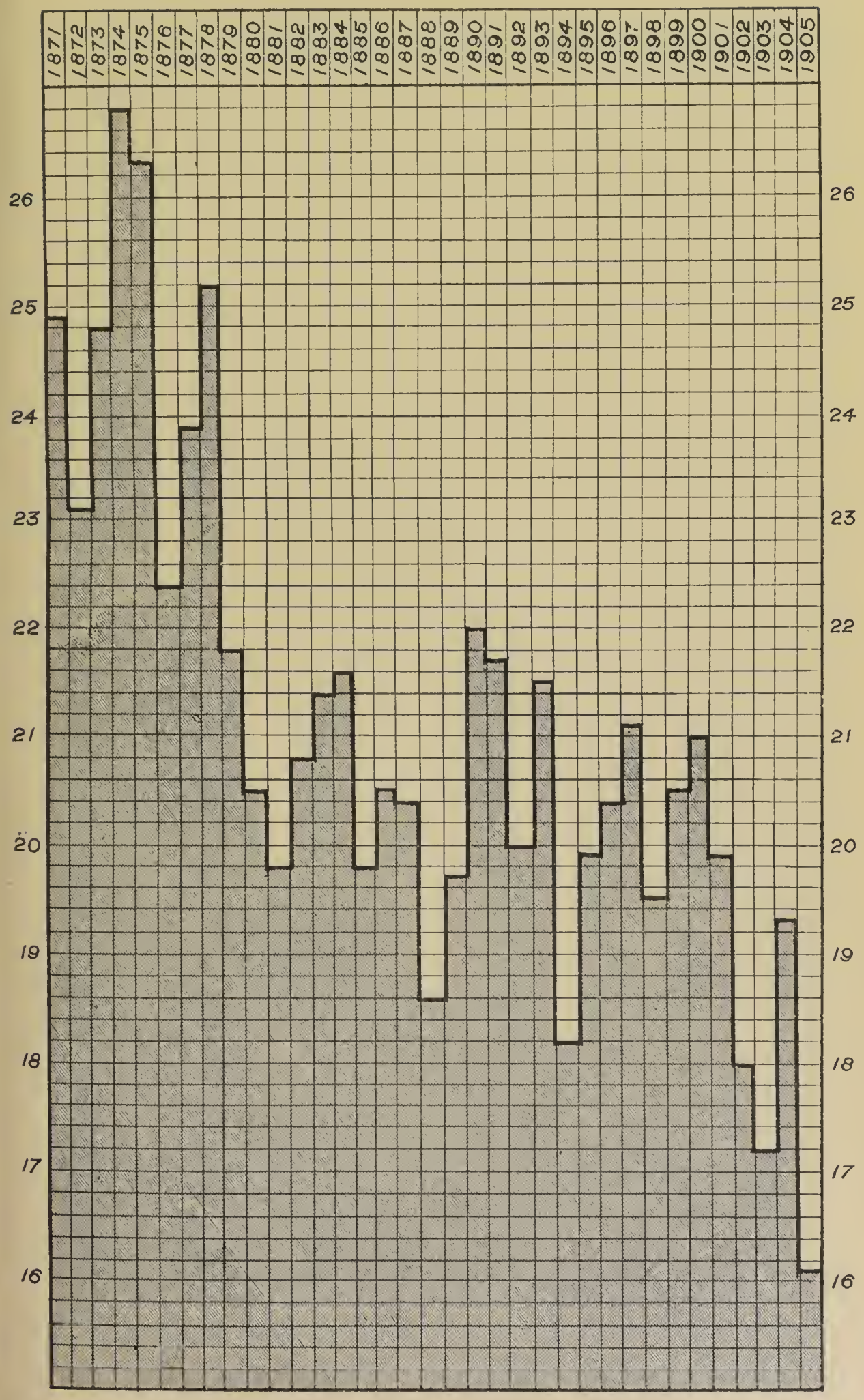
	Death rate per 1000.	
1871	24·9	
1872	23·1	
1873	24·8	Average 25·2
1874	26·8	
1875	26·3	
1876	22·4	
1877	23·9	
1878	25·2	Average 22·8
1879	21·8	
1880	20·5	
1881	19·8	
1882	20·8	
1883	21·4	Average 20·7
1884	21·6	
1885	19·8	
1886	20·5	
1887	20·4	
1888	18·6	Average 20·2
1889	19·7	
1890	22·0	
1891	21·7	
1892	20·0	
1893	21·5	Average 20·3
1894	18·2	
1895	19·9	
1896	20·4	
1897	21·1	
1898	19·5	Average 20·5
1899	20·5	
1900	21·0	
1901	19·9	
1902	18·0	
1903	17·2	Average 18·1
1904	19·3	
1905	16·1	

Death-rates in Birmingham and England and Wales.

It is desirable to ascertain exactly how the mortality-rate in Birmingham compares with that in England and Wales and in other districts. For this purpose the follow-

CHART No. 2.

Death-Rate in Birmingham, 1871-1905.



ing table has been set out to show for five-yearly periods the Birmingham figures, together with those of England and Wales.

	Birmingham.	England and Wales.
1871—1875	25·2	22·0
1876—1880	22·8	20·8
1881—1885	20·7	19·4
1886—1890	20·2	18·9
1891—1895	20·3	18·7
1896—1900	20·5	17·7
1901—1905	18·1	16·0

Death-rates in large towns.

The next tabular statement shows the mortality-rates for the last five years in twenty of the largest towns in England, together with the average for the ten years 1895-1904.

Death-Rates in Towns (from Annual Summary of Registrar-General).

	1901.	1902.	1903.	1904.	1905.	Ten years, 1895–1904.
London	17·6	17·7	15·7	16·6	15·6	18·2
Liverpool... ...	22·3	22·5	20·5	22·6	19·6	23·2
Manchester ...	22·1	20·0	19·7	21·3	18·0	22·6
Birmingham ...	20·5	18·6	17·8	19·9	16·2	20·2
Leeds	19·3	17·6	16·6	18·0	15·2	19·1
Sheffield	20·4	17·1	18·6	16·8	17·0	19·6
Bristol	16·0	17·4	14·3	15·6	14·6	16·9
Bradford	16·8	15·8	16·4	17·6	15·2	17·7
West Ham ..	17·9	17·1	15·3	16·5	14·8	17·8
Hull	18·7	17·2	16·9	18·6	16·3	18·8
Nottingham ...	18·5	16·7	16·9	17·7	16·5	18·4
Salford	21·7	19·3	19·0	21·2	16·9	22·6
Newcastle ...	21·9	19·9	19·2	19·4	16·8	20·9
Leicester	15·9	14·9	14·2	14·5	13·3	16·7
Portsmouth ...	17·9	16·8	14·7	16·9	16·6	17·4
Cardiff	15·8	16·8	14·0	14·8	13·4	16·9
Bolton	18·2	16·9	17·5	16·9	15·1	19·5
Sunderland ...	21·4	19·5	19·9	19·5	18·6	20·9
Croydon	12·9	14·0	11·8	13·8	12·5	13·8
Oldham	19·6	19·1	18·6	18·2	18·0	20·5

Corrected death-rates.

These rates, however, are not strictly comparable owing to the fact that trade and other conditions require that one population should have in it an unusually large number of males as compared with females, or that one should have a larger number of young adults in it than another, so that it is desirable to use the figures corrected for age and sex constitution as given by the Registrar-General in his annual summary. The highest corrected death-rates were those in Merthyr Tydfil, 23·44, Middlesbrough 22·82, Hanley 21·07, Liverpool 21·01, while the lowest were those in Hornsey, 8·63, King's Norton 9·48, Leyton 10·62, and Handsworth 11·08. The position of Birmingham in this list during 1905 is distinctly better

than in the previous year. It now stands twenty-seventh from the bottom of the list, while in the previous year it was eleventh. Large towns like Leicester, with a corrected death-rate of 14·15 per 1,000, Southampton 14·30, Cardiff 14·52, Bristol 14·95, and Leeds 16·63, occupy a better position than Birmingham.

MORTALITY IN GREATER BIRMINGHAM.

Death-rate in greater Birmingham.

The following table is a repetition of that in last year's report, and gives the population and mortality-rate in each of the Birmingham suburbs. When the whole of this area is taken the death-rate works out at 14·3 per 1,000. If we take the more purely residential suburbs of Birmingham, excluding Smethwick, Oldbury, and Castle Bromwich, the mortality-rate for this district would be 14·4 per 1,000.

DEATH-RATE IN BIRMINGHAM CENTRE.

	1905. Population.	1905. Deaths.	Death Rates.
*Birmingham	542,959	8,752	16·2
*King's Norton	69,630	630	9·1
†Yardley...	43,150	530	12·3
†Castle Bromwich ...	2,900	31	10·7
†Erdington	22,425	221	9·8
*Aston Manor	81,320	1,066	13·1
*Handsworth	61,721	620	10·1
*Smethwick	62,605	831	13·3
*Oldbury...	26,349	403	15·3
Total—Birmingham and District	913,059	13,084	14·3

* Registrar-General. † Annual Report of Medical Officer of Health.

The map on the opposite page indicates the mortality-rate in each of the surrounding districts, and in each ward of the city.

WARD DEATH-RATES.

Death-rates in wards.

A table giving the death-rate in each of the wards of the city is appended. It will be seen from this that during 1905 the mortality ranged from 23·1 per 1,000 in St. Bartholomew's Ward to as low as 11·1 per 1,000 in Edgbaston and Harborne Ward. Saltley, Balsall Heath, Bordesley, All Saints, and Rotton Park Wards all had mortality-rates below 15 per 1,000, whilst only St. Bartholomew's, St. Mary's, Deritend, and Duddeston had death-rates exceeding 20 per 1,000. St. Stephen's had what for it is a record a death-rate of 20 per 1,000. A better idea of the distribution of high mortality is obtained from the map of Birmingham and the surrounding districts, which has already been referred to.

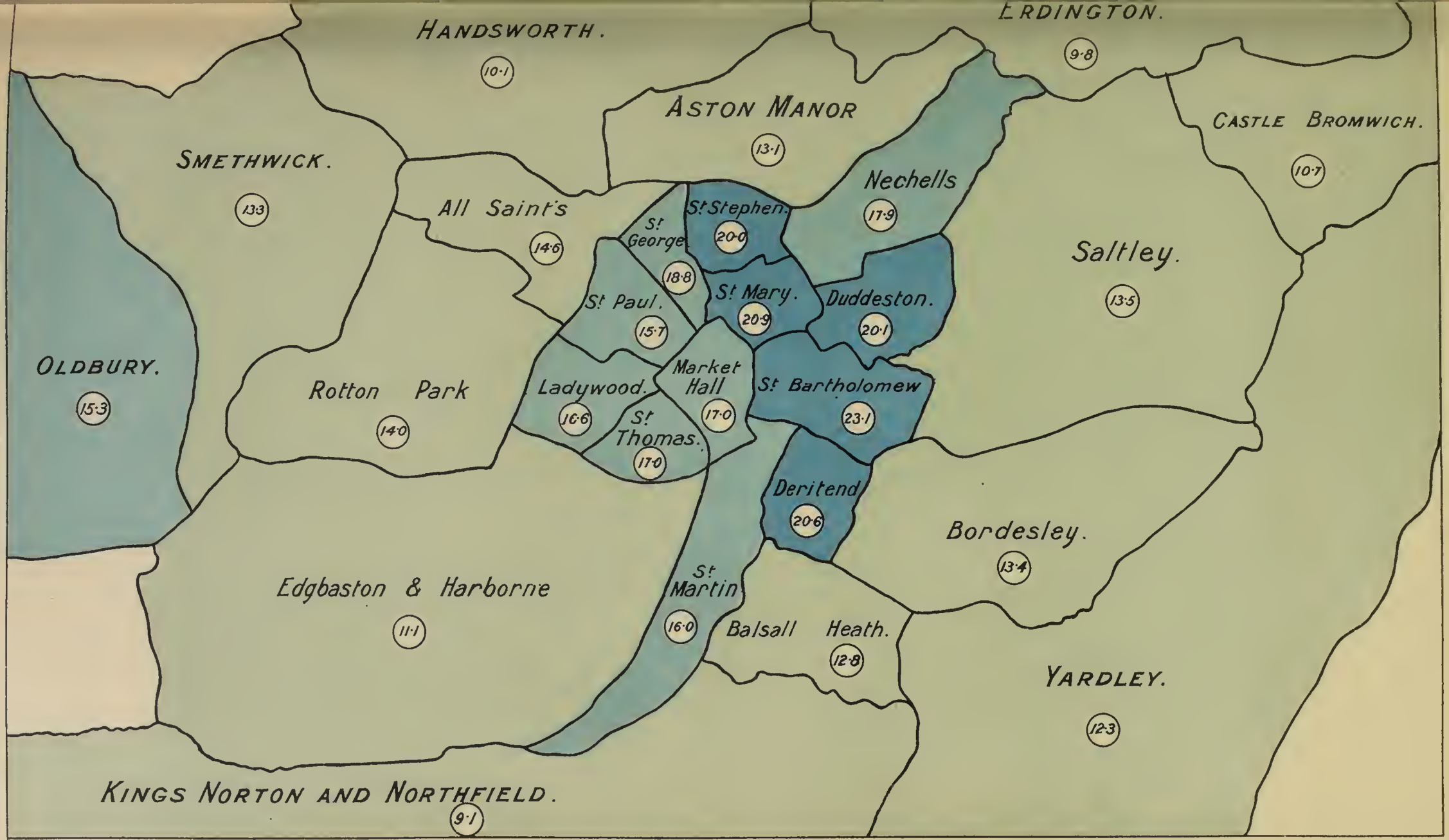


CHART. No. 3.

DEATH RATE PER 1000 : UNDER 15 15 AND UNDER 19 OVER 19

Wards.	Death-rate per 1000. 1901.	1902.	1903.	1904.	1905.	Mean of 5 years.
Rotton Park	16·1	14·4	13·9	17·2	14·0	15·1
All Saints'	17·5	15·5	15·7	17·9	14·6	16·2
Ladywood	20 0	17·3	17·8	20·1	16·6	18·4
St. Paul's	22·6	18·2	19·2	21·5	15·7	19·4
St. George's	23·2	21·6	20·8	21·5	18·8	21·2
St. Stephen's	26·6	26·5	21·0	24·7	20·0	23·8
St. Mary's	29·7	24·8	23·1	24·1	20·9	24·5
St. Bartholomew's	25 9	24·6	24·4	28·7	23·1	25·3
Market Hall	17·4	16·9	16·3	17·7	17·0	17·1
St Thomas'	20·9	20·1	18·7	18·0	17·0	18·9
St. Martin's	20·3	20·3	16·8	18·8	16·0	18·4
Edgbaston and Harborne ...	13·1	12·3	12·1	12·7	11·1	12·3
Deritend	22·3	20·3	21·5	22·0	20·6	21·3
Bordesley	15·4	13·4	13·3	15·2	13·4	14·1
Duddeston	23·2	21·3	19·7	22·9	20·1	21·4
Nechells	22·6	18·7	16·9	22·9	17·9	18·6
Balsall Heath	15·0	14·8	13·5	14·8	12·8	14·2
Saltley	17·6	15·1	15·7	16·8	13·5	15·7
Whole City	19·9	18·0	17·2	19·3	16·1	18·1

MORTALITY AT VARIOUS AGES.

Death-rates at ages.

The death-rates in Birmingham during the year 1905 in age groups are shown in the following table, and for the sake of comparison the rates for England and Wales as a whole, and for the Urban and Rural Counties in the year 1904, are appended.

Age Groups.	Year 1905.	Year 1904.		
	Birmingham.	England and Wales.	Urban Counties.	Rural Counties.
0–	55·1	51·6	59·1	37·0
5—	3·4	3·5	3·9	2·8
10 –	2·0	2·1	2·2	1·8
15—	2·5	3·0	3·0	3·1
20—	3·1	3·8	3·7	4·2
25—	5·2	5·3	5·4	5·3
35—	10·2	8·8	9·6	7·3
45—	16·7	15·0	16·8	12·0
55—	33·1	29·2	33·1	23·5
65—	89·0	87·3	92·2	83·0

INFANTILE MORTALITY.

Infant mortality.

The deaths of 2,451 babies under one year of age were registered during the year 1905. There were 15,795 babies whose births were registered during the year, so that the infant mortality rate was 155 per 1,000 births, as compared with 195 in the preceding year. The rate for 1905 was one of the lowest on record, although not quite the lowest. During the previous year on the other hand the rate had been one of the highest on record. The main cause of this sudden drop from highest to lowest is the

fact that last summer the climatic conditions were not such as to produce a high infantile mortality, while during the previous year the conditions were favourable.

The rate for 1905 while being one of the lowest yet recorded is, I think, seriously high, indicating ignorance and carelessness in the rearing of young children to such an extent as to unnecessarily cause the deaths of probably over 1,000 infants. Certain of the deaths are apparently to a very large extent unavoidable. The following table gives the causes of deaths under one year of age in 1905, and in each of the preceding seven years.

CHIEF CAUSES OF DEATH OF INFANTS UNDER ONE YEAR IN BIRMINGHAM IN 1905 AND SEVEN PRECEDING YEARS.

Chief causes of infant mortality.

Causes of Death	1898	1899	1900	1901	1902	1903	1904	1905
Measles	42	53	35	62	37	50	47	40
Whooping Cough ...	104	74	129	81	122	37	210	72
Diarrhœa	534	670	475	634	327	462	764	364
Enteritis	424	442	331	154	78	84	92	126
Tubercular Diseases...	94	91	114	129	98	111	93	75
Premature Birth ...	371	366	353	348	361	365	377	304
Debility & Marasmus	589	574	670	648	562	531	569	536
Convulsions	178	194	178	167	172	119	144	128
Bronchitis, Pneumonia, and Pleurisy ...	393	398	500	399	409	413	505	380
Suffocation	94	92	92	92	70	95	96	75
All other Causes ...	464	444	489	436	445	401	405	351
Total	3287	3398	3366	3150	2681	2668	3302	2451

We may consider that the deaths from measles, whooping cough, diarrhœa, enteritis, tubercular diseases, bronchitis, pneumonia, and pleurisy are to a very large extent preventable among infants, and it will be seen that on an average these represent nearly 50 per cent. of the deaths which take place.

Infant deaths at various ages and from different causes.

In the table on the opposite page particulars are given as to the causes of death and the ages of the infants who died during 1905. It will be noted that 424 died within the first seven days of their birth, and that practically all of these died from prematurity or some congenital debility. For the present it is probably not worth discussing the prevention of a number of these, further than to say that there is a very large amount of evidence now existing which points to the fact that the conditions producing premature birth and congenital debility are largely influenced by mal-nutrition of the mother and by improper living, and that even with this group of infant deaths it is possible to reduce the number considerably.

INFANTILE MORTALITY DURING THE YEAR 1905.

DEATHS FROM STATED CAUSES IN WEEKS AND MONTHS UNDER ONE YEAR OF AGE.

Cause of Death.	Weeks.				Total under One Month.	Months.											Total Deaths under One Year.
	0	1	2	3		1	2	3	4	5	6	7	8	9	10	11	
Small-pox	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Chicken-pox	...	...	...	...	...	...	1	...	...	1	...	...	...	...	...	...	2
Measles	...	...	...	...	...	..	..	1	1	1	1	5	5	10	9	7	40
Scarlet Fever	...	...	...	...	...	...	...	1	...	..	...	1	...	...	...	..	2
Diphtheria: Croup	...	...	...	...	...	...	..	...	...	2	...	2	1	1	1	2	9
Whooping Cough	...	...	...	1	1	9	2	6	3	9	6	7	8	5	5	11	72
Diarrhœa, all forms	1	1	...	9	11	41	48	47	49	37	35	33	20	22	13	8	364
Enteritis (*not Tuberculous*) ...	1	1	6	5	13	16	23	21	11	8	9	8	4	5	4	4	126
Gastritis	1	...	...	1	2	4	6	9	6	3	...	...	3	2	1	...	36
Premature Birth	204	34	21	13	272	21	4	3	...	2	...	2	...	...	...	...	304
Congenital Debility & Defects	171	37	49	34	291	67	24	8	3	3	3	2	2	2	...	...	405
Injury at Birth	5	...	...	...	5	..	...	...	...	...	...	...	...	...	...	...	5
Want of Breast-milk	1	...	2	1	4	5	4	3	3	1	1	...	...	2	...	...	23
Atrophy, Debility, Marasmus	...	...	...	...	...	42	47	50	23	16	12	7	7	9	6	3	222
Tuberculous Meningitis ...	...	...	...	...	...	...	...	1	2	3	...	1	1	2	2	2	14
Tuberculous Peritonitis) Tabes Mesenterica)	...	...	1	...	1	2	7	7	4	2	9	2	4	2	2	3	45
Other Tuberculous Diseases	...	...	1	1	2	2	1	3	1	...	...	...	4	1	2	...	16
Erysipelas	..	...	1	...	1	2	1	...	...	...	...	1	...	...	...	...	5
Syphilis	...	...	2	2	4	2	5	3	...	...	1	...	1	...	...	1	17
Rickets	...	...	...	...	...	1	...	1	...	1	...	1	2	1	4	2	13
Meningitis (*not Tuberculous*)	...	1	...	...	1	5	1	1	3	3	2	3	5	9	4	2	39
Convulsions	16	9	12	5	42	12	10	14	10	5	6	7	9	3	4	6	128
Bronchitis	1	4	12	2	19	16	15	19	23	11	14	12	13	12	14	9	177
Laryngitis	...	...	1	...	1	...	...	...	...	...	...	1	...	...	...	2	4
Pneumonia	5	2	...	2	9	14	16	11	16	16	18	19	27	15	20	21	202
Suffocation, overlaying... ...	5	...	5	4	14	16	10	17	4	4	3	1	...	...	1	...	70
Other Causes	13	3	5	6	27	11	7	5	6	5	10	13	8	6	7	6	111
	424	92	118	86	720	288	232	231	168	133	130	128	124	109	99	89	2,451

Births in the Year ... { Legitimate... ... 15,334
Illegitimate ... 461

Deaths from all causes at all ages 8,718

Population (estimated to middle of year) 542,959

Between seven days and the end of the first month no less than 296 children died mainly as the result of prematurity or congenital debility. Of the total 720 children dying under one month old no less than 563 died from these two causes. Of the children who died between one month old and twelve months the chief causes of death were diarrhœa and enteritis, atrophy, debility and marasmus, convulsions, bronchitis, pneumonia, and others.

The deaths from diarrhœa are dealt with elsewhere, as are also those from bronchitis, pneumonia, and other causes. Infantile convulsions as a cause of death in the great majority of cases is distinctly one resulting from wrong methods of feeding and rearing, and greater care and knowledge will reduce the mortality very largely. Again, the very numerous deaths due to atrophy, debility and marasmus arise very largely from bad conditions of the mother before birth of the child or bad feeding or rearing after birth.

Infant mortality in large towns.

In his annual summary for the past year the Registrar-General reports that the mortality rate for the whole country among infants was only 128 per thousand births. Among the 76 great towns it was highest in Rhondda—200, Hanley—195, Merthyr Tydfil 193, Grimsby 174, and Norwich 174, while a number of towns had infant mortality rates below 90, such as Bournemouth, Burton-on Trent, Handsworth, and King's Norton. Among the largest towns the infant mortality-rate was—in London 131, in Liverpool 153, in Manchester 157, in Leeds 151, and in Sheffield 167, as compared with 155 in Birmingham.

Infant mortality in wards.

The next table shows the infant mortality-rate in each of the wards :—

WARDS.	Infantile Mortality Rate per 1000 Births.		Reduction per cent.
	1904.	1905.	
Rotton Park	178	131	25
All Saints'	173	126	27
Ladywood	192	160	17
St. Paul's	225	138	39
St. George's	213	151	29
St. Stephen's	232	177	24
St. Mary's	331	201	39
St. Bartholomew's	263	207	21
Market Hall...	187	186	1
St. Thomas'	196	164	16
St. Martin's	185	179	3
Edgbaston and Harborne	133	131	2
Deritend	208	205	1
Bordesley	146	131	10
Duddeston	217	171	21
Nechells	219	161	26
Balsall Heath	150	113	25
Saltley	178	140	21

It will be noted that here again differences are found. Balsall Heath with a birth-rate of 27.0 per 1,000 had the lowest infantile mortality rate, viz., 113 per 1,000, while St. Bartholomew's with a birth-rate of 34.6 had the highest infant mortality rate, viz., 207.

Infant mortality and bottle-feeding.

In an enquiry which was made two years ago it was found that among the class of people visited by the Health Visitors 56·7 per cent. of the babies under six months old were breast fed, 28·8 per cent. were having breast milk with some other food added, while only 14·5 per cent. were having no breast milk. These figures were obtained as the result of house-to-house visitation, and referred to babies who were at the time of the Health Visitor's visit in apparently good health, the idea being that the figures above stated should represent approximately the extent to which bottle feeding amongst children is resorted to. All the districts in the city were visited, so that it may be said that amongst the poorer classes certainly not more than 20 per cent. of the babies are entirely hand fed by their mothers. This is a much smaller percentage than is usually thought to be the case. When one comes to investigate the deaths amongst babies under six months old one finds that the great majority of them occur amongst this comparatively small number who are not breast fed.

Reasons for giving up breast-feeding

In the annual report for last year it was stated that a bottle fed baby was thirty times more likely to die than a breast fed baby. It was also stated that certain enquiries were being undertaken by the Health Visitors in regard to the reasons why mothers gave up nursing the infants at the breast, and during the past year 486 such cases were enquired into. In this enquiry it was thought undesirable to deal with cases where the baby had died, and so the enquiries were limited to babies under six months old who were found in the ordinary visits of the Health Visitors, and who were not being fed at the breast. These babies were members of families which comprised 1,304 children who were then alive and 469 who had died; that is, a total number of 1,773 children born to these 486 mothers. As will be pointed out later, a great many of these mothers either had never been able to nurse their children, or had nursed very few of them, and this probably is the explanation of why we get so large a proportion of deaths in these families. The average number of children per mother was 3·6. The time when the 486 infants were weaned is set out in the following table :—

Reasons for giving up breast-feeding (*continued*).

Not nursed at all	115
Nursed for a week or less	60
" one to two weeks	90
" three weeks...	58
" four weeks	43
" five weeks	17
" six weeks	46
" six weeks to two months	43
" three months to six months	13
No particulars	1
Total	486

It will be noticed that the great majority of these mothers gave up nursing early in the baby's life, and it was important to ascertain why they were induced to do so, as in all cases it is naturally more economical and more convenient in every way to nurse the child.

No less then 300 mothers alleged that they had an insufficient amount of breast milk, or that the milk left them altogether. From enquiries made amongst the medical profession and amongst the midwives, there appears to be no reason to doubt that this was a sufficient cause in a considerable proportion of instances. In others there is reason to believe that if the mother had known how to tide over the difficulty she could have gone on nursing quite satisfactorily. Fifty-eight of the mothers alleged that they had to give up nursing on account of their own bad health. Only 22 had to cease nursing on account of going to work, and four said they gave it up because they did not wish to do it. The remaining number gave up nursing for various reasons, such as depressed nipples, child unable to suck, or milk not suiting the child. Medical men advised the mothers to give up nursing in 105 instances.

The chief finding from this enquiry, therefore, is that according to their own statement the great majority of these mothers gave up nursing after the first week or two owing to the insufficiency of the milk or to some difficulty in connection with their own or the baby's health. In order to get at these mothers at the most impressionable time, lectures have been given to the midwives in Birmingham dealing with the above and similar figures, in which the necessity of making a determined effort to continue breast feeding among the working classes was pointed out as the most important object any midwife can have in view when giving instructions for the rearing of infants. The midwives in Birmingham have not only undertaken to call attention to this, but are also distributing the printed pamphlets sanctioned by the Health Committee dealing with the rearing of infants.

Another important point which is often raised, and which stands out quite prominently from the above figures, is that the number of mothers who are prevented from nursing their infants on account of having to go to work in Birmingham appears to be particularly small.

It has been alleged that the greatest carelessness occurs amongst the younger mothers in regard to feeding their children, and for this purpose the ages of the mothers at the present time and also at the birth of the first child were taken. They were as follows :—

	Present age.	Age at first birth.
Under 20	17	63
20–25	109	284
25–30	173	111
30–35	116	21
Over 35	70	3
No particulars	1	4

The table shows that a good many of the cases occur among mothers who are old enough to realise the importance of nursing their babies.

PREVALENCE OF INFECTIOUS DISEASE.

Zymotic death-rate.

The deaths due to the seven principal Zymotic Diseases numbered 1,051 during 1905, as compared with 1,845 in the previous year. We have, therefore, a zymotic death-rate of 1·94 per 1,000 compared with 3·44 in 1904, 2·32 in 1903, and 2·60 in 1902. It should further be noted that the zymotic death-rate for 1905 constitutes a record in being the lowest annual rate for the city.

Deaths from zymotic diseases.

The figures below show the causes of death, the number of deaths and a comparison with the average of the years 1895 to 1904.

Disease.	1905.	Average 1895 to 1904.	Above or below Average.
Smallpox	1	3	− 2
Measles	239	226	+ 13
Scarlet Fever	53	121	− 68
Diphtheria	98	149	− 51
Whooping Cough...	159	256	− 97
Typhoid Fever	38	100	− 62
Diarrhœa	463	698	− 235
Whole Group	1,051	1,553	− 502

Zymotic death-rates in large towns.

Of the 76 great towns the Registrar-General shows in his Annual Summary 32 with a higher zymotic mortality than Birmingham in 1905, which is a considerable improvement on the previous year's record, when this city was twelfth on the list. The highest rates are recorded in Merthyr Tydfil, 4·04; West Bromwich, 3·21; Sheffield, 3·20; Preston, 3·15 and Wigan, 3·14. The lowest are recorded in Hornsey, 0·16; Bournemouth, 0·50; Brighton, 0·56; Handsworth, 0·63; Burton-on-Trent, 0·67 and King's Norton, 0·78.

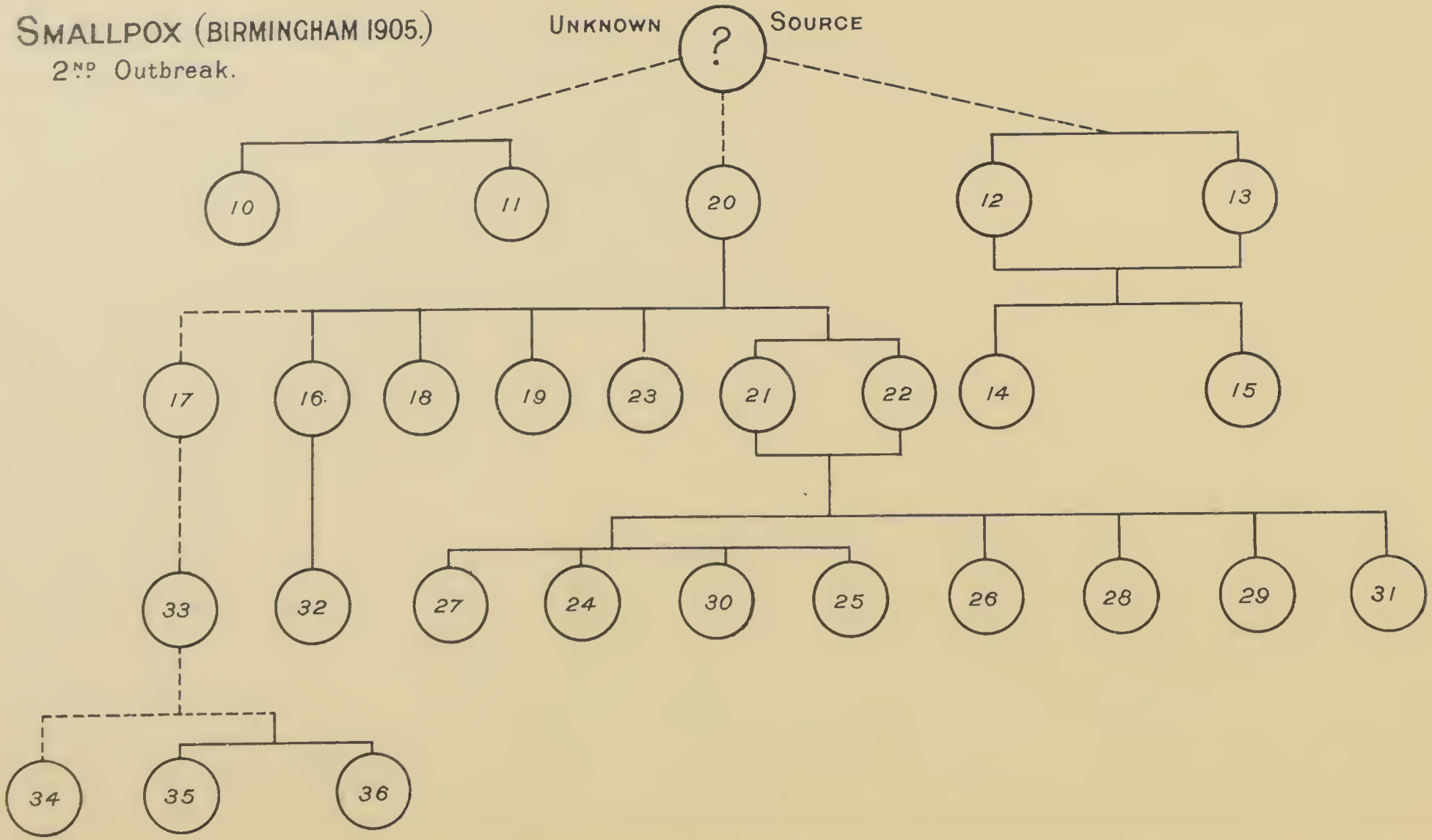
SMALL-POX.

Small-pox.

Thirty-six cases of Small-pox occurred in the City during 1905. These were the result of two separate importations of the disease, though the importing agents were, unfortunately, never got hold of. The earliest cases in each instance were discovered in Common Lodging Houses in the City, and everything pointed to the fact that a casual visitor suffering from the disease in an unrecognised form, had previously passed through the town and lodged at those houses, leaving his infection behind him.

The first importation occurred probably some time in January, as the earliest case was discovered at the beginning of the following month. This was a mild, modified instance of the disease which escaped recognition for a day or two on account of its extreme mildness, and even when first seen, preventive measures, although at once adopted, were undertaken tentatively. That these were amply justified was proved by the subsequent outbreak of eight cases directly traced to this source. This forms a striking illustration of the too frequent difficulties which arise in dealing with this disease satisfactorily at its outset. The other eight cases occurred at the same Lodging House, to which, fortunately, the outbreak was limited. This limitation was achieved mainly owing to the fact that we were able to vaccinate or re-vaccinate 57 out of the 114 men who inhabited the Lodging House. With the occurrence of those nine cases the outbreak ceased.

Early in May a similar circumstance occurred. A case of Small-pox, unrecognised and never identified, probably visited the City at that time, and stopped a night in each of two of the largest Common Lodging Houses. A fortnight later the disease broke out simultaneously in both houses, two cases being discovered in each. From these cases the spread of the disease was speedily checked, as only two persons were subsequently infected in connection with them.


SMALLPOX (BIRMINGHAM 1905.)
2ND Outbreak.
UNKNOWN
?
SOURCE
10
11
20
12
13
17
16
18
19
23
21
22
14
15
33
32
27
24
30
25
26
28
29
31
34
35
36

Small-pox (*continued*).

Unfortunately, another man not living at either of the houses, but in close association with the lodgers in each, developed the disease about the same time and, almost certainly, from the same undiscovered source. This man was not found till after the outbreak of the disease in 4 cases, which were subsequently traced to his infection. In the meantime he lived in one of the slum court-yards of the town and continued at his work, and at each place he, of course, spread the disease, as he was thus nearly a month at large in an infective condition. All the other cases which occurred at intervals during more than a month, were either directly or indirectly traced to this source. These latter included 27 cases, and the City was not quite free of the disease till the end of July. The diagram accompanying shows the sequence of and connection between the cases in this second outbreak.

In the former set of cases the disease was mild in type, and no deaths occurred. In the latter many of the cases were severe, but in only one instance, the last case, did a fatal termination result. This was in a much debilitated woman of 48, very inefficiently vaccinated in infancy, who developed a severe semi-confluent attack and died of septicæmia on the 17th day of illness. The fatality of the disease was thus :—2·8 per cent.

The condition as regards vaccination in the above 36 patients is set out in the following table.

	Number of Cases showing Vaccination Cicatrices.	Number of Cases showing none.
Under 1 year of age ...	0	0
From 1 to 5 years ...	0	0
" 5 to 10 " ...	0	1
" 10 to 20 " ...	4	2
" 20 to 60 " ...	25	4
Over 60 years	0	0
	29	7

The Small-pox Hospital was opened on February 9th and remained so till the middle of August, with the exception of a few days in the beginning of May.

The two houses in the Yardley Road which were adapted for the reception of "contacts," the supervision of disinfection in whom could not otherwise be efficiently carried out, proved of very great value in dealing with the outbreak. Persons living in the Lodging Houses and slum court-yards, in which the cases occurred, were removed at once to these shelters, bathed, and their clothes disinfected,

Small pox (*continued*).

while they remained during at least one night while their dwellings were thoroughly cleansed and disinfected. When possible they were also re-vaccinated and in most instances they were allowed to return the next day to their homes and work, to be kept under daily supervision during the incubation period of the disease. In this way 55 'contacts' were lodged in these shelters, and the total number of days during which the shelters were in use was 60. In the large majority of these persons, detention was not considered necessary beyond 24 hours, but in several instances it was thought advisable to further quarantine the 'contact,' and this was in each case carried out without any trouble and with good results.

VACCINATION.

Vaccination

The following table shows the percentage of primary Vaccination in Birmingham as compared with that in England and Wales. It shows the percentage of children born not finally accounted for in the Vaccination Registers, and includes cases postponed.

	Registration Districts of			
	Birmingham.	Aston.	King's Norton.	England and Wales.
1884	2·4	5·5	2·1	5·5
1885	4·3	6·8	2·8	5·8
1886	4·6	7·6	2·5	6·4
1887	5·5	8·6	3·0	7·1
1888	4·9	8·7	4·3	8·5
1889	5·8	9 1	4·7	9·9
1890	5·8	10·1	5·5	11·3
1891	8·3	13·5	11·0	13·4
1892	7·9	13·7	19·2	14·9
1893	6·5	12·1	21·3	16·1
1894	8·0	13·2	27·3	19·2
1895	7·6	14·9	23·3	20·5
1896	7·7	14·4	19·1	22·9
1897	9·0	14·5	25·7	22·7
1898	14·6	17·5	28·5	21·5
1899	16·7	14·8	23·2	17·2
1900	15·4	13·2	18·3	15·6
1901	13·2	12·2	12·8	13·0
1902	10·0	12·2	9·3	11·6

Similar statistics are not obtainable as yet for the last three years. Up to the present, the local figures for the year ending June 30th, 1905, are shown below, but these are still uncorrected.

Birmingham, year ending June 30th, 1905.

Births returned	16,402	
Died unvaccinated	2,001	
Conscientious objections	70 or 0·4%	of total.
Successfully vaccinated	12,824 or 89 0%	of survivors.
Postponed by medical certificate	194 or 1·3%	,,
Removed to other vaccination districts	156 or 1·1%	,,
Lost sight of	1,016 or 7·1%	,,
Still under notice	72 or 0·5%	,,

During the year several reports have been made by the Health Visitors of Infants whose births did not appear in the lists supplied by the registrars and from the information obtained in this way there seemed to be some evidence that a small proportion of the children born escape registration, one of the reasons for the evasion being to avoid compulsory vaccination.

MEASLES.

Measles.

There were 239 Deaths registered as due to Measles during 1905, a larger number than in the previous year, when 207 Deaths were recorded. The number of Deaths registered in each of the ten previous years is shown thus :—

DEATHS FROM MEASLES.

1895	1896	1897	1898	1899	1900	1901	1902	1903	1904	1905
133	310	414	182	196	130	300	189	195	207	239

The following table shows the ages at Death during each of the last three years :—

	1903	1904	1905
Under 1 year	50	47	40
1 and under 2 years ...	74	75	96
2 " 3 " ...	26	37	47
3 " 4 " ...	21	18	29
4 " 5 " ...	12	11	13
All under 5 " ...	183	188	225
5 and under 10 " ...	12	17	13
All over 10 " ...	0	2	1

Measles among school children.

The number of Deaths from this disease cannot be relied upon to indicate with any exactness the extent of its prevalence at any one period, as there is a distinct seasonal variation in its fatality. During the year the School Attendance Officers supplied very useful information as far as they could of the incidence of Measles in houses from which children were attending school, and some supervision was exercised over these. Reports received in this way come, as a rule, too late to be of any practical value, and since the beginning of the present year (1906) the plan has been adopted of obtaining notice daily from the Head Teachers of cases of absence from school, in which Measles in the house is suspected as the cause. In this way enquiries can be made at once, and instructions given, which will, it is hoped, be much more efficacious because more prompt. The number of schools from which the information has been sent up to the time of going to print was only 80 (or about two-thirds of the number in the city).

It is amongst very young children that the greatest mortality from Measles is shown, and this is mainly due to Lung and Bronchial complications which can be guarded against, in many instances, by intelligent home treatment if instructions and help are given in time. It was found

advisable to recommend the temporary closure of the Infants' Departments of several schools during the year, on account of prevalence of Measles, but in no instance was it deemed necessary to close other departments of a school.

SCARLET FEVER.

Scarlet fever.

There were 1,684 cases of Scarlatina notified during 1905, as compared with 1,659 in 1904, and 2,835 in 1903. In the table following is given the number in each of the previous years since the Infectious Disease (Notification) Act came into force in the City.

Year.	1890	1891	1892	1893	1894	1895	1896	1897	1898	1899	1900	1901	1902	1903	1904	1905
Notified Cases	2995	1466	1418	1614	1788	2964	3389	1929	1320	1255	2063	3314	5044	2835	1659	1684
Deaths	209	91	68	68	75	133	154	95	47	29	93	156	293	144	65	53
Percentage Mortality	7·0	6·2	4·8	4·2	4·2	4·5	4·5	4.9	3·6	2·3	4·5	4·7	5·8	5·1	3·9	3·1

The number of Deaths registered during the year was 53, which gives a fatality based on the number of notified cases, of 3·1 per cent. This figure compares favourably with that for 1904, which was 3·9 per cent., and that for 1903, which was 5·1 per cent., and shows the lowest fatality rate of any year since notification became operative, except that of 1899.

Scarlet fever in wards.

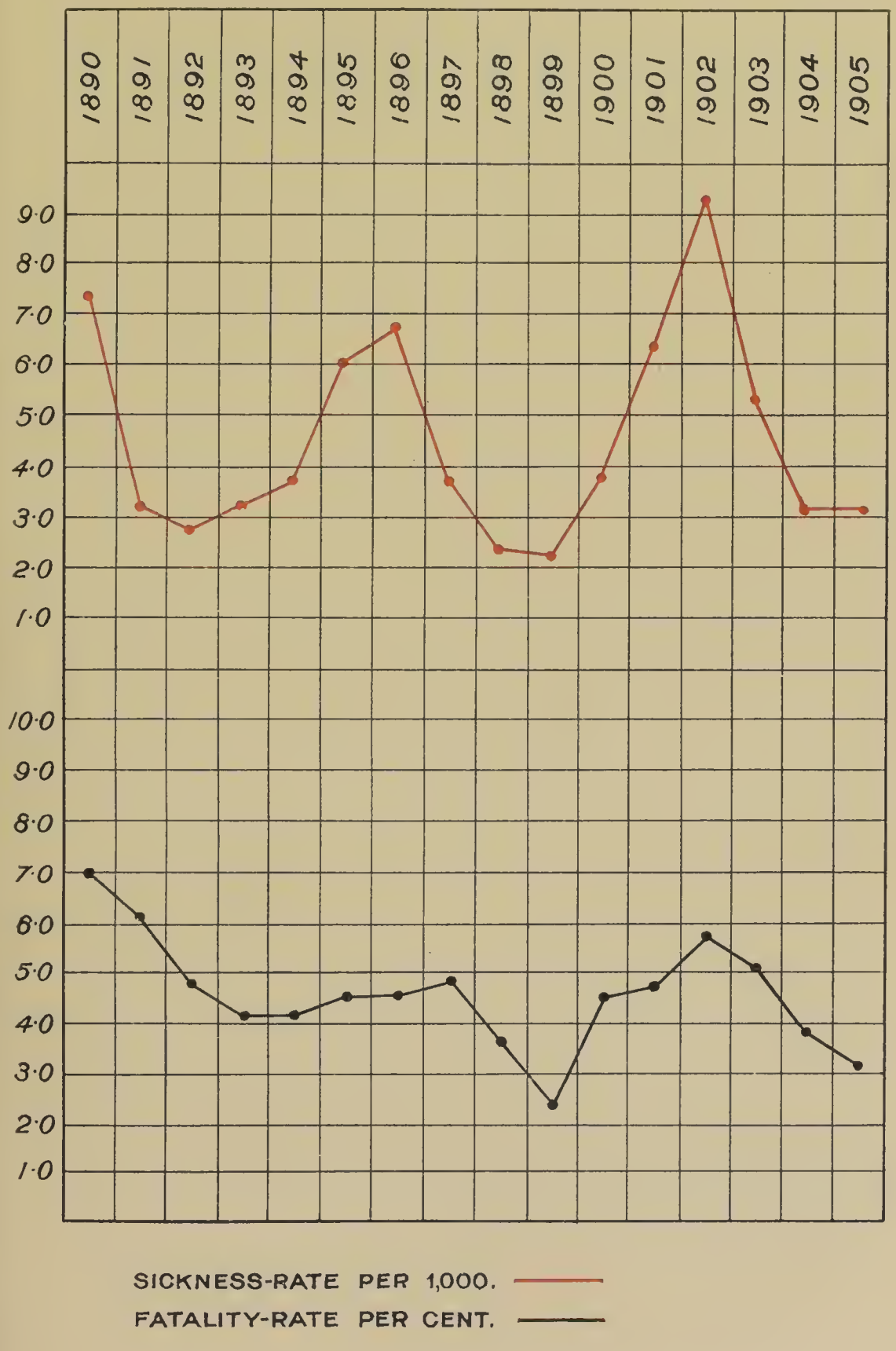
The next table gives the sickness per thousand of the population in each of the Municipal Wards for the last five years, together with the Mean Rate.

SCARLET FEVER SICKNESS RATES.

Ward.	1901.	1902.	1903.	1904.	1905.	Mean of 5 years.
Rotton Park ...	5·17	13·95	6·46	4·32	3·38	6·66
All Saints'	6·78	9·18	5·08	3·44	3·84	5·66
Ladywood	4·54	11·43	4·83	4·39	2·98	5·63
St. Paul's	8·09	6·50	3·28	2·43	2·00	4·46
St. George's ...	6·42	4·70	4·75	4·07	4·57	4·90
St. Stephen's ...	5·47	4 04	3·92	3·60	4·00	4·21
St. Mary's	6·86	7·50	2·71	1·26	3·28	4·32
St. Bartholomew's ...	6·63	8·15	4·41	2·29	3.07	4·91
Market Hall ...	3·77	6·59	4·85	2·07	1·88	3·83
St. Thomas' ...	4·53	12·22	4·90	2·77	2·15	5·31
St. Martin's ...	5·80	8·51	4·09	2·78	1·78	4·59
Edgbaston and Harborne	5·04	7·88	2·84	2·52	2 26	4·11
Deritend	7·73	14·36	4·91	2·78	2·07	6·37
Bordesley	10·13	10·59	7·07	2·57	3·03	6·68
Duddeston	6·19	8·84	4 34	2·17	4 19	5·15
Nechells	2·50	7·58	5·31	2·07	3·35	4 16
Balsall Heath ...	7·24	9·08	6·84	4·16	2·35	5·93
Saltley	5·56	8·99	7·64	3·06	4·04	5·86

CHART No. 4.

SCARLET FEVER.



1,489 cases were admitted into Hospital during the year. This is equal to the removal of 88 per cent. Last year 87 per cent. were thus isolated. Cases removed to hospital.

Percentage of Cases Removed to Hospital.

	Cases Reported.	Cases Removed.	Percentage.
1893	1614	1339	83 %
1894	1788	1539	86 %
1895	2964	2595	88 %
1896	*3389	*2812	83 %
1897	1929	1641	85 %
1898	1320	1083	82 %
1899	1255	1052	84 %
1900	2063	1814	88 %
1901	3314	2959	89 %
1902	*5044	*4534	90 %
1903	2835	2455	87 %
1904	1659	1437	87 %
1905	1684	1489	88 %

* 53 weeks.

As a result of minute enquiries into certain particulars in connection with the cases of Scarlatina notified during the year, some useful and important information has been obtained.

1.—Mistaken Diagnosis.

Among the cases notified within the year, 1489 were removed into Hospital, and of this number the Medical Superintendent informs me 76 were found not to be suffering from this disease at the time of their admission. This means an error of 5 per cent in diagnosis amongst the cases sent to Hospital. This, though still very important, shows a great reduction on last year's figure which was 9 per cent. Amongst the cases notified during the year, but treated at home, six were reported by Medical Practitioners as eventually not Scarlatina, nearly 3 per cent. compared to 2½ per cent. in 1904. Scarlet fever, Mistaken diagnosis.

The Health Committee retained the arrangement that the Superintendent at the Hospital shall see any doubtful cases at the request of the Medical Practitioners of the City, and this arrangement has been carried out during the year. Still, although the amount of error is greatly reduced when compared with that in 1904, it remains a considerable

Scarlet fever. Mistaken diagnosis (*continued*).

factor to be dealt with. This question of wrong diagnosis is one of the well-recognised difficulties met with by all Isolation Hospital Authorities, though figures on the above lines are not available from other towns for comparison.

The following information has been received from the Medical Superintendent of the Isolation Hospital, in reference to the above 76 cases.

CASES ADMITTED TO HOSPITAL AS SCARLATINA DURING 1905 WHICH PROVED NOT TO BE SUCH.

Corrected Diagnosis.	No. of Cases.	Developed Scarlatina after admission.	Died.
Chickenpox	1	—	—
Measles	8	1	2
German Measles	2	1	—
Whooping Cough	1	—	—
Drug Rash	1	—	—
Septic Rash	1	—	—
Tinea	1	—	—
Tonsillitis	2	—	—
Chronic Rhinitis	4	—	—
Chronic Otitis Media	1	—	—
	22	2	2
No signs of Scarlatina or other definite illness on admission or subsequently	54	20	—
Total	76	22	2

From this table it is to be noted that 22 patients were found on admission to be suffering from a disease other than Scarlatina, but that only two of these developed Scarlatina in Hospital, and of the whole group two died. On the other hand, 20 out of the 54 patients who showed no sign of Scarlatina or other definite disease developed Scarlatina after admission (37 per cent.), without, however, any fatality. It is pleasing to be able to state that these figures show a distinct improvement on those obtained on similar lines last year. The average duration of stay in Hospital of these 76 cases was 58 days. Of the 34 patients who had no definitely recognisable illness on admission, and who did not develop Scarlatina while in Hospital, the average stay was 49 days, and of the 20 who did develop Scarlatina, it was 85 days. The length of stay in Hospital of these 22 suffering from some obvious illness other than Scarlatina is set out in the next table.

Scarlet fever. Mistaken diagnosis (*continued*).

Diagnosis at Hospital.	No. of Cases.	Register Number.	Days in Hospital.	Remarks.
Measles	8	452	49	Did not develop S.F.
		463	9	,, ,, Died: (Pneumonia)
		791	47	,, ,,
		846	25	,, ,,
		919	55	,, ,,
		981	71	Developed S.F. in Hospital.
		6	29	Did not develop S.F.
		1428	4	,, ,, Died
German Measles...	2	860	52	,, ,,
		304	61	Developed S.F. in Hospital
Chickenpox ...	1	871	82	Did not develop S.F.
Whooping Cough	1	223	60	,, ,,
Drug Rash ..	1	281	42	,, ,, (Iodoform)
Septic Rash ...	1	1689	30	,, ,, (Wound of leg)
Tonsillitis ...	2	1277	64	,, ,, (Jaundice)
		230	16	,, ,,
Ringworm ...	1	282	45	,, ,,
Otitis	1	1448	46	,, ,,
Chronic Rhinitis...	4	432	51	,, ,,
		1300	57	,, ,,
		1349	88	,, ,,
		1374	79	,, ,,

After consideration of facts similar to the above, based on the figures of 1904, the Health Committee. in conjunction with the Medical Officer of Health and the Medical Superintendents of the Hospitals, drew up an arrangement for the admission, classification, and discharge of Scarlatina patients in the Hospital, with a view of minimising the risk of the spread of infection, inside and outside the Institution. This, while regulating the routine practices of the Hospital, allowed of sufficient discretionary power being exercised by the Medical Superintendents in those special circumstances which are so frequent in such administration. This arrangement has not, however, been long enough in force to allow of any judgment being formed as to its effect in reducing the percentage of cases infected in the hospital.

II.—So called "Return" Cases.

"Return" cases of scarlet fever.

The investigation carried out in 1904 in regard to these cases, has been continued on similar lines during the present year, and the following are the facts obtained. As pointed out in last year's report, great difficulty exists in defining correctly what is meant by a "Return" case, owing to our inability to reconcile divergent opinion. It is necessary, therefore, to state again that in this instance "all new cases of Scarlatina which have occurred, either in

"Return" cases of scarlet fever (*continued*).

"the same house, or from contact with it, within a period "not less than 24 hours and not more than 28 days after "the return of a previous patient from the hospital, have "been counted as 'return' cases." For the sake of convenience of reference, the new case arising from this possible connection is designated the "return" case, while the previous case discharged from hospital is called the "infecting" case; these terms being here applied quite independently of the reality, or otherwise, of any causal relationship. The "return" cases investigated in this report are those of which the probable "infecting" cases were admitted to the hospital during 1905.

In 1905, 54 such new cases were investigated, compared with 67 during the previous year. In some instances it was evident that the new case had little or no ætiological connection with the case previously discharged from hospital. in others it seemed almost certain that it had, while in a large majority, the connection between the two could neither be proved nor disproved. These 54 "return" cases are said to have arisen after the discharge of 53 "infecting" cases, 52 of which came from our own hospital, and one from the hospital of the King's Norton District.

The number of days between the first contact with the supposed "infecting" patient and the onset of the subsequent patient's illness was as follows:—

1 day	3 cases.
2 days	6 "
3 "	4 "
4 "	5 "
5 "	6 "
6 "	4 "
7 "	1 case.
8 "	3 cases.
9 "	4 "
10 "	1 case.
11 "	2 cases.
12 "	2 "
14 "	2 "
15 "	1 case.
16 "	2 cases.
17 "	1 case.
18 "	1 "
23 "	1 "
27 "	2 cases.
? "	4 "

The patients to which the so-called "return" cases were attributed (*i.e.*, the supposed "infecting" cases) suffered from the following complications, either while in hospital or after discharge:—

"Return" cases of scarlet fever (*continued*).

Complications.	While in Hospital.	After Discharge.
Otorrhœa	10	6
Glandular Enlargement	7	9
Nasal Discharge	11	15
Albuminuria	4	—
Nephritis	1	—
Second Attack	1	—
Sores or Abrasions, &c.	8	11
Intercurrent Infectious Diseases	4	3
Chronic Enlargement of Tonsils	14	13

In three of the investigations undertaken in connection with these "return" cases, the supposed "infecting" case was proved not to be one of Scarlatina, and in three other instances the so-called "return" cases were similarly not of this disease. The number of days during which the supposed "infecting" patient remained in hospital was as follows:—

	No. of Cases.	Percentage of Cases in 1905.	Percentage of Cases in 1904.
Less than 40 days	0	0·0	3·0
40 to 50 days	9	17·0	25·8
50 to 60 "	19	35·8	25·8
60 to 70 "	10	19·0	18·2
70 to 80 "	7	13·2	10·6
80 to 90 "	4	7·4	6·0
90 to 100 "	1	1·9	7 6
Over 100 "	3	5·6	3·0
Over 60 days	25	47·2	45·5

The average time during which the "infecting" cases were isolated in hospital was during the year, 60 days, as compared with 58 days during 1904. This shows that a thorough appreciation of the risk of the occurrence of these "return" cases is in the minds of the hospital authorities, and care is taken, and time spent, in ridding cases of any condition likely to enhance this risk.

In only one instance it was found that the patient who constituted the so-called "infecting" case returned directly home from the hospital and slept in the same bed with a so-called "return" case (1·75 per cent.) In 13 instances the patients slept in the same room but not in the same bed (22·8 per cent.) In 28 instances they slept in separate rooms (49·1 per cent.), and in 15 the "infecting" case either lived in a separate house, and so only came in contact during

"Return" cases of scarlet fever (*continued*).

the day, or was sent away for at least eight days after leaving hospital before coming in contact with the subsequent case (26·31 per cent.) Printed instructions are always issued to the friends before the return of a patient from the hospital, advising a fortnight's isolation of the patient from other children at least during sleeping hours. It is worthy of note that in well over 50 per cent. of the instances investigated, isolation to such an extent was attempted.

Included in the arrangement referred to above for the admission, classification and discharge of Scarlatina patients are suggestions for isolation of cases showing septic complications from those which seem free from such, after the acute stage of the illness has passed. Further suggestions are made, and means provided, for the isolation and observation in an uninfected building, for at least 48 hours, of patients who are ready for discharge after receiving their disinfecting bath, before allowing them to leave the hospital. It is too early yet to form any opinion as to the result of these measures.

III.—Secondary Cases in Infected Houses.

Secondary cases of scarlet fever.

An investigation has been carried out during the past two years relating to the occurrence of subsequent cases in dwelling houses after a first case has been notified in that house. The period over which this has extended includes the years 1904 and 1905, and the houses dealt with are those in which the notification of the first case has been received at the Health Department during the period included within these statistical years, regardless of the fact that the subsequent case or cases in the house may not have been notified during this period. All cases occurring in public institutions have been excluded, and so have those cases which, though originally notified as scarlatina, have been afterwards found by the medical practitioner in charge of the case either at home or in the hospital, not to be such.

The total number of cases notified during the two years was 3,360 (1,665 in 1904 and 1,695 in 1905), but after excluding such cases as above mentioned, the number is reduced to 3,005. Of this number 2,506 were first cases in the house and 499 were subsequent cases.

The number of separate houses involved was, during the two years, 2,456, giving an average number of cases per house of 1·2. Of these 2,456 houses, only 396 showed the incidence of subsequent cases, *i.e.*, 16·1 per cent. This

means that in about 84 per cent. of the houses in which a case of scarlatina occurred no further spread took place. This would appear to indicate that the preventive measures adopted were crowned with a very fair degree of success.

Secondary cases of scarlet fever (*continued*).

In preparing these statistics the chronological relation of the cases only is considered as regards the earliest symptoms, and no ætiological meaning is implied, as it is too often impossible to arrange the cases in their order of infection, because so frequently the source cannot be traced, and even if it could the variable incubation period would introduce too unreliable a basis of calculation.

In the following table all those cases are excluded which occurred in Public Institutions, and those which, although notified as Scarlatina originally, proved subsequently not to be such.

Recurrence of Scarlet Fever in Houses (1904–5).

	1904.	1905.	Two years 1904-5.
Number of cases notified	1473	1532	3005
Number of houses involved	1235	1221	2456
Average Number of cases per house	1·19	1·25	1.2
Number of cases removed to hospital	1253	1334	2587
Proportion of cases removed to hospital	85 %	87·1 %	86·1 %
Number of houses from which cases were removed	1044	1058	2102
Proportion of houses from which cases were removed	84·5 %	86·6 %	85·6 %
Number of houses in which primary cases only occurred	1042	1018	2060
Proportion of houses in which primary cases only occurred	84·4 %	83·4 %	83·8 %
Number of houses from which primary cases went to hospital	1026	1054	2080
Number of such houses in which no cases followed	868	864	1732
Proportion of such houses in which no cases followed	84·6 %	81·9 %	83·2 %
Number of houses in which primary cases were kept at home	190	167	357
Number of such houses in which no cases followed	174	154	328
Proportion of such houses in which no cases followed	91·5 %	92·2 %	91·9 %

Removal to hospital and secondary cases.

One of the chief preventive means adopted has been of course isolation, and during the two years 87·5 per cent of the cases have been isolated in Hospital. If we separate

Removal to hospital and secondary cases (*continued*).

those houses, the first case in which was removed to Hospital, from those in which the first case was kept at home, and note the relative numbers in which no subsequent case occurred, we find as follows :—

	1904.	1905.	Two years, 1904-5.
Number of houses from which primary case removed to Hospital	1026	1054	2080
Number of such houses in which no case followed	868	864	1732
Proportion of such houses in which no case followed	84·6%	81·9%	83·2%
Number of houses in which primary case was kept at home	190	167	357
Number of such houses in which no case followed	174	154	328
Proportion of such houses in which no case followed	91·5%	92·2%	91·9%

In a broad way this seems to indicate that the success in preventing the re-occurrence of Scarlatina has not been so markedly evident in the former as in the latter group of houses.

It may be as well to note that during the two years under consideration there has been no reason to doubt but that the amount of accommodation provided in the Isolation Hospitals of the City has been adequate, in spite of the large proportion of cases removed. Although removal has almost always taken place on the same day on which notification has been received, enquiries have shown this to be on the average the fourth day after the onset of symptoms, whether we take each year separately or the two years combined. Of course in the majority of instances the cases treated at home occur in that class of house where greater precaution against spread of infection can, and will, be promptly taken than is the case in the houses from which the patient is removed. A more detailed investigation should therefore show that in the former case more room to isolate and fewer contacts to infect exist than in the latter. Procedure has therefore been made on the following lines :—The number of rooms, and especially the number of bedrooms, per house has been tabulated, the number of persons living in the house has been ascertained, and particularly the number of children under 15 years, and the numbers of these stated not to have had Scarlatina previously, and therefore deemed to be susceptible, have been separated out.

The following tables will show some of the results of this enquiry. Class of house and secondary cases.

	Houses from which 1st Case went to Hospital.	Houses in which 1st Case was kept at Home.
1904.		
Average number of persons per house	4·7	5·0
Proportion of children to total inmates	41·2 %	39·4 %
Average number of rooms per house	4·6	6·3
Average number of persons per room	1·0	0·8
Average number of persons per bedroom... ...	1·8	1·4
1905.		
Average number of persons per house	5·8	5·0
Proportion of children to total inmates	50·2 %	40·9 %
Average number of rooms per house	4·5	6·2
Average number of persons per room	1·3	0·8
Average number of persons per bedroom... ...	2·3	1·4
Two Years 1904–1905.		
Average number of persons per house	5 3	5·0
Proportion of children to total inmates	46·2 %	40·15 %
Average number of rooms per house	4·5	6·2
Average number of persons per room	1·16	0·8
Average number of persons per bedroom... ...	2·0	1·4

The above table shows the comparison between the conditions existing at the time of notification of the primary case in houses from which this case was removed to Hospital, and those in which it was kept at home. We may note that all the conditions existing in the former group of houses are more in favour of the spread of the infection than in the latter, at least as far as our knowledge of the nature of the disease extends at present. There is a greater number of inmates per house, and a greater proportion of these are under 15 years of age. The number of rooms in each house is notably less, and the average number of persons per room is nearly one-third less, and per bedroom is more than one-third less. This would indicate that it is a much better class of house in which the first case was kept at home than that in which it was considered expedient to remove it to Hospital.

If we now compare the susceptibility of those inmates in each group of houses who are left after the notification of the primary case, we shall also find a corresponding contrast. Susceptible inmates and secondary cases.

Susceptible inmates and secondary cases (*continued*).

	HOUSES.					
	1st Case removed to Hospital.			1st Case kept at Home.		
	1904	1905	1904–5	1904	1905	1904–5
Proportion of inmates constituted by susceptible children (under 15) ..	37·3	31·0	33·8	16·8	20·4	18·4
Average number of susceptible children remaining after each instance	1·76	1·80	1·78	0·84	1·01	0·92
Average number of susceptible persons (at all ages) remaining after each instance..	3·96	4·22	4·09	2·97	3·18	3·07
Proportion of instances in which susceptible children remained ..	80·8	82·07	81·4	52·1	51·5	51·8
Proportion of instances in which susceptible persons (at all ages) remained	99·2	99·5	99·2	94·2	97·0	95·8

One-third of the inmates of those houses from which the primary case was removed was made up of susceptible contacts under 15 years old, while in the other group these formed less than one-fifth, and only about one-half as many susceptible children were left in those houses where the case was kept at home. Those houses in which no susceptible children were found after notification of the first case were nearly twice as many in home treated as in the Hospital treated cases. It would seem that taking these latter figures into consideration we have no small modification to apply to the statement made above that the success in preventing the spread of Scarlatina has been more marked in that group in which the first case is not removed to Hospital, than in the other.

A more elaborate research is necessary before any practical result can be obtained, and such will be prosecuted carefully in the future, but in view of the smallness of the figures as yet obtainable no very useful purpose can at present be served in quoting them. The evidence from the figures of as long a period as possible will have to be available, and in future years this will be obtained while the investigation is carried on on similar lines.

Fatality of scarlet fever.

Of the 1,334 cases notified during the year, admitted to Hospital and found to be suffering from Scarlatina, 48 died, giving a fatality of 3·6 per cent., which compares favourably with last year's figure of 4·7 per cent. Of the 198 cases treated at home three died, a fatality of 1·5 per cent., compared with 2·7 per cent. last year. Four of the above deaths in Hospital were the result of co-existent Scarlatina and Diphtheria, and in one other instance death was due to Tabes Mesenterica 110 days after admission, when the patient had long been clear of Scarlatina. One of the deaths among the cases kept at home was certified as due to Scarlatina and Measles.

It appears from the above careful investigation into the origin of the cases and the method of spread of the disease, that some of the views at present held in regard to this and kindred subjects relating to Scarlatina may have to be somewhat altered or amended.

DIPHTHERIA.

Diphtheria. There were notified during 1905 698 cases of Diphtheria, which is a higher figure than that for the previous year by 68, and gives a sickness-rate of 1·29 per thousand, compared with 1·17 per thousand in 1904 and 1·66 per thousand in 1903.

The death-rate was 0·18 per thousand, a gratifying decline from that of 1904, which was 0·21 per thousand, that of 1903, 0·25 per thousand, and of 1902, 0·24 per thousand. The fatality amongst the cases notified was 14 per cent., 98 deaths being recorded. The fatality in 1904 was 18 per cent., and in 1903, 15 per cent.

The table below gives the number of cases notified, the number of deaths, and the fatality of the disease during each year since 1892.

	DIPHTHERIA.		
	Cases notified.	Deaths registered.	Case-mortality per cent.
1892 ...	533 ..	102 ...	19
1893 ...	387 ..	83 ...	21
1894 ...	406 ...	91 ...	22
1895 ...	741 ..	214 ...	29
1896 ...	*1,194 ..	*293 ...	25
1897 ...	713 ...	160 ..	22
1898 ...	689 ...	132 ...	19
1899 ..	720 ...	147 ...	20
1900 ...	542 ...	77 ...	14
1901 ...	533 ...	85 ...	16
1902 ...	*787 ...	*130 ...	17
1903 ...	884 ...	135 ...	15
1904 ...	630 ...	115 ...	18
1905 ...	698 ...	98 ...	14

*53 weeks.

The general decline in the fatality since 1895 may again be pointed out as markedly progressive, though not without interruption. The fatality has never been lower and only once so low as in 1905 It compares favourably with that of 1904, during which year the disease was more fatal than it should be, and indeed there seems no reason why last year's figure should not be greatly improved upon if prompt treatment with antitoxin be resorted to in every case.

Special outbreaks of diphtheria.

Three outbreaks in which the disease was of an extremely mild, and in some instances, almost doubtful, character occurred during the earlier months of the year in institutions in the City, and, as in these a good number of cases occurred with no deaths, to a certain extent the lowered general fatality of the disease is accounted for.

In February, 21 cases were notified from a Girls' Home. The cases were so mild that it would have been impossible but for the aid of bacteriology to make a definite diagnosis. The disease had been introduced by one of the inmates coming from without City to the Home after having suffered slightly from a sore throat. In May, a similar outbreak of an equally mild type of the disease occurred in a Children's Home in another part of the City. Twelve cases, all except the first of a mild character, and 20 doubtful cases were isolated after bacteriological examination. Again during March, 7 mild cases of Diphtheria were notified amongst the resident employees of a large business house, which, but for the aid afforded by bacteriology, would, in all probability, have passed for simple sore throats. If, therefore, these 41 instances of the disease be deducted from the number of notified cases and the fatality be calculated on the remainder, it will be found to be 15 instead of 14 per cent.

Diphtheria cases removed to City Hospital.

Three hundred and twenty-one cases notified as Diphtheria were admitted to the City Hospital. Accommodation for this disease had not previously been available till the early months of 1905. Wards were first set aside at Little Bromwich Hospital, but in October, Lodge Road Hospital was opened for the exclusive treatment of cases of Diphtheria and Typhoid Fever.

Diphtheria mortality in Hospital and at home.

Of these 321 cases, 34 died, giving a case mortality of 10·6 per cent.

Of the 377 notified cases treated at home or in other institutions, 64 died, a case mortality of 17 per cent. Amongst the former group, however, must be included the 41 cases mentioned above, as included in the three localized outbreaks, and these, of course, have a certain influence in lowering the case-mortality of that group.

Diphtheria. Mistaken diagnosis.

The Medical Superintendent informs me that five of the deaths amongst those patients sent to the Hospital occurred in cases which were not Diphtheria, three being Malignant Scarlatina, one Tuberculosis, and one Pneumonia, whilst all the deaths amongst notified cases treated at home are certified as due to Diphtheria, Membranous Croup, or some complication or sequela of these.

Thirty-five of the cases admitted to the City Hospital were found, on admission, not to be suffering from Diphtheria, and five of them died, though none of them developed the disease whilst in hospital. Seventeen of the 35 were cases of Scarlatina, 15 were cases of Tonsillitis and simple sore throat, one of Pneumonia, one of Tuberculous Abscess, and one had no recognisable symptoms of disease. In all of these cases bacteriological work was brought to the aid of clinical in diagnosis, and indeed without such in a number of cases, the true nature of the disease must have remained in doubt.

Bacteriological examination of diphtheria cases in City Hospital.

Amongst the cases admitted to the City Hospital (including the 20 doubtful cases for observation previously mentioned), 28·8 per cent. had been examined bacteriologically at the University before admission. Of this number 77·3 per cent. gave a positive, 12·4 per cent. a negative, and 10·3 per cent. a doubtful reaction. The hospital is provided with a bacteriological laboratory, and the cases admitted are examined for the presence of the Diphtheria bacilli as soon after admission as practicable. If the bacilli are found, the case is then put under treatment, and is examined at intervals from time to time, till the Medical Superintendent is assured from the result of his examination that the throat and naso-pharynx are free from the germ, when the case is discharged unless otherwise contra-indicated. In this way about 97 per cent. of the cases admitted were examined bacteriologically within four days after admission, many of them twice during this time. Amongst this proportion over 82 per cent. showed the presence of Diphtheria bacilli, over 17 per cent. did not, and 0·6 per cent. gave only doubtful evidence of Bacillus Diphtheriæ. The majority of the specimens examined were taken on the second day in hospital (74·8 per cent.), as it was usually considered inadvisable to disturb the patient immediately after admission; 20·5 per cent. were taken on the third day.

Of the 75 cases admitted after bacteriological examination at the University with a positive result, 58, or 77·4 per cent., were found at the hospital during the first four days to have Diphtheria bacilli, while in 17 these germs were not found during this time. Of the 12 admitted in which the previous result of examination at the University was negative, 7, or 58·3 per cent., showed the presence of Diphtheria bacilli within the four days, and six out of the ten admitted in which the result of the previous examination was doubtful, gave a positive result within the same time.

Persistence of bacilli in diphtheria cases.

If we take the failure to find the bacilli in the throat secretions of the patient as a rough indication of his freedom from infection, and if, for the purpose of ascertaining the earliest date after the commencement of treatment at which this freedom from infection exists, we make periodical examinations of these secretions, we can get some idea of the duration of the infectivity of our hospital-treated cases. For this purpose only those cases are considered which within four days of admission gave evidence of the presence of Diphtheria bacilli, and the period of infectivity is calculated as lasting until careful examination shows no further evidence of their presence; the first date on which this negative result is obtained being taken as the end of the infective period. In applying this method to the present set of cases it has to be admitted that the cases were not examined with uniform regularity, and a case was often discharged sooner after the first negative result was obtained than would allow of a sufficiently convincing test. The results, however, afford some indication of the behaviour of the disease in spite of active measures of treatment, and are in themselves not uninteresting.

Within the first four days after admission 271 cases showed the presence of the bacilli. Of these 41 died or were transferred to the Scarlatina wards before further examination was made, 3 were discharged without showing a negative result, and thus 44 cases are deducted, leaving 227 to be classified. Of these, 4, or nearly 1·8 per cent., were free from the Diphtheria bacilli within 10 days; 31, or 13·6 per cent., were free in from 10 to 15 days; 12, or 5·3 per cent., in from 15 to 20 days; 15, or 6·6 per cent., in from 20 to 25 days; 14, or 6·1 per cent., in from 25 to 30 days; 24, or 10·6 per cent., in from 30 to 35 days; 18, or 8 per cent., in from 35 to 40 days; while 109, or 48 per cent., were not clear under 40 days. Three out of these 109 cases were not found free of bacilli till after 100 days; 11 not till after 80 days; and 46 not till after 60 days. It must be stated, however, that 53 ont of those 109 cases were only once examined for various reasons, after the first week in hospital.

Bacteriological examinations at University.

At the Pathological Department of the University swabs to the number of 743 were examined for Diphtheria bacilli during 1905. This number is considerably more than double that for 1904, which was only 313, and shows that greater advantage is being taken by the Medical Profession in the City of this valuable aid to diagnosis. The cost of this work, calculated on the basis of the agreement with the University, would be about £192 17s. 6d.

Four hundred and sixty-two doses of anti-toxin, each 2,000 units, were applied for by medical practitioners for curative or prophylactic use during the year. Unfortunately no means are available for determining the number of cases of Diphtheria thus treated. Almost all of the cases sent in to the City Hospital were not previously treated with anti-toxin, so that most of the anti-toxin was presumably used for the 377 cases treated at home. No doubt, however, some of it was employed as a prophylactic, and some of the cases had probably more than one dose, so that it is impossible to form even an approximate calculation of the number of cases of Diphtheria thus treated. Anti-toxin issued.

Below will be found the sickness-rate, and certain other information in regard to Diphtheria cases for each Ward in the City. Diphtheria in wards.

	Cases notified.	Sickness rate per 1,000.	Persons for whom anti-toxin was sent.
Rotton Park	111	2·29	31
All Saints'	18	0·43	8
Ladywood	42	1·69	10
St. Paul's	19	1·22	2
St. George's	34	1·67	3
St. Stephen's	35	1·50	2
St. Mary's	18	1·16	3
St. Bartholomew's	33	1·33	5
Market Hall	22	2·43	1
St. Thomas'	11	0·59	4
St. Martin's	24	0·97	7
Edgbaston and Harborne ...	27	0·87	20
Deritend	24	1·01	8
Bordesley	62	1·06	31
Duddeston	59	2·52	13
Nechells	57	1·74	2
Balsall Heath	39	0·97	18
Saltley	40	0·85	7

WHOOPING COUGH.

Whooping Cough was the cause of 159 Deaths during the year 1905, giving a Death-rate of 0·29 per 1,000. This is a very great contrast to the Death-rate in 1904, which was 0·87 per 1,000. As will be seen from the following table, the Death-rate from this disease was lower during 1905 than in any year except 1903 during the period of the last 30 years. Whooping cough.

1875	1·20		1890	·47	
1876	·51		1891	·66	
1877	·98	Average ·97	1892	·59	Average ·56
1878	1·19		1893	·66	
1879	·97		1894	·44	
1880	·55		1895	·35	
1881	·90		1896	·76	
1882	·79	Average ·67	1897	·45	Average ·48
1883	·43		1898	·50	
1884	·70		1899	·33	
1885	·61		1900	·58	
1886	·23		1901	·42	
1887	·91	Average ·59	1902	·50	Average ·51
1888	·56		1903	·17	
1889	·66		1904	·87	
			1905	·29	

Whooping cough (*continued*).

There has been nothing in the nature of the severe epidemic of 1904 during the year under consideration, and, so far as our knowledge goes, there has been no marked spread of the disease in localized areas within the City.

In the following table the ages at Death from Whooping Cough are given.

Under 1 year	72	deaths.
Between 1 and 2 years	44	"
" 2 " 3 "	19	"
" 3 " 4 "	12	"
" 4 " 5 "	6	"
" 5 " 6 "	4	"
" 6 " 7 "	1	"
" 7 " 8 "	1	"
Over 8 years	0	"
Total	159	

The Health Visitors still continue to keep a certain supervision over those houses brought to their notice in which there is an outbreak of this disease and where a medical practitioner is not in attendance, urging care in treatment and what little isolation can be carried out in our courtyard property.

TYPHOID FEVER.

Typhoid fever.

The death-rate from this disease during 1905 was again 0·07 per 1,000, as it was in the previous year, and is the lowest on record. The notified cases numbered 209, which is again the lowest on record, and compares favourably with the previous year's figures, which were 248, and constituted till now the smallest annual incidence. With fewer cases the death-rate of 0·07 indicates, however, a higher fatality amongst these cases, and the disease during the year showed this greater severity, for 38 deaths occurred during the year compared with 36 in 1904 and 66 in 1903.

The following table shows the cases, deaths and fatality of this disease in each year since 1895 :—

Years ...	1895	1896	1897	1898	1899	1900	1901	1902	1903	1904	1905
Notified Cases	436	483*	533	637	779	851	615	544*	348	248	209
Deaths ...	82	108*	89	113	119	1799	111	100*	66	36	38
Percentage Mortality	19	22	17	18	15	21	18	18	19	15	18

*53 weeks.

In comparing the mortality from "Fever" in Birmingham with that in other large towns, we find that in 1905 it was higher than in London (0·05), and Bristol (0·03), but lower than in Liverpool (0·10), Manchester (0·09), Sheffield (0·10), and Leeds (0·12).

The next table continues the statistics given in former reports :— Typhoid fever and temperature and rainfall.

	TYPHOID FEVER.		Mean Temperature, degrees Fah., in 3rd Quarter.	Rainfall in inches for year.
	Death-rate.	Sickness-rate.		
1887	·17	—	58·9	19·80
1888	·14	—	55·7	24·62
1889	·09	—	57·6	24·94
1890	·14	·66	58·0	22·10
1891	·18	·93	57·3	31·14
1892	·08	·54	57·0	25·60
1893	·19	1·00	60·0	20·76
1894	·21	1·04	54·9	25·52
1895	·17	·88	59·6	24·89
1896	·21	·95	57·7	22·27
1897	·18	1·06	58·3	28·21
1898	·22	1·25	58·7	20·45
1899	·23	1·52	61·2	25·12
1900	·35	1·64	60·2	29·09
1901	·21	1·18	60·7	22·64
1902	·19	1·01	57·1	25·98
1903	·12	·65	57·4	33·83
1904	·07	·46	58·8	21·94
1905	·07	·39	58·4	22·30

The climatic conditions as indicated in the mean autumnal temperature and in the annual rainfall do not differ very markedly from those noted during the previous year, whilst an equally low death-rate and a lower sickness rate mark the course of the disease. As will be seen later, the diarrhœa death-rate, which was in such contrast to that from Enteric Fever in the previous year, is much more in keeping with it during the present.

The next table shows the number of cases which have occurred during each four-weekly period in the year under consideration, and gives the average number for the corresponding periods during the previous fifteen years. Typhoid fever at different periods of the year.

	1905.	Average in 15 years, 1890-1904.
Four weeks ending January 28th	11	42
" " February 25th	18	40
" " March 25th	19	34
" " April 22nd	17	34
" " May 20th	12	30
" " June 17th	17	24
" " July 15th	8	20
" " August 12th	5	23
" " September 9th	10	43
" " October 7th	18	49
" " November 4th	26	51
" " December 2nd	34	56
" " " 30th	14	48

These figures show, as did the corresponding table in the previous year's report, that the disease was not prevalent in any marked manner at any period, and the incidence is well below the average during each period of the year.

Typhoid fever in wards.

The sickness rates for Typhoid Fever in wards are given below :—

	1901.	1902.	1903.	1904.	1905.
Rotton Park	·94	·72	·47	·46	·43
All Saints'	1·04	·91	·47	·30	·28
Ladywood	1·08	1·07	·44	·36	1·01
St. Paul's	1·40	1·09	·71	·32	·19
St. George's	1·73	1·52	·44	·59	·69
St. Stephen's	2·02	1·01	·59	1·06	·69
St. Mary's	1·83	1·00	·86	1·20	·51
St. Bartholomew's	1·90	1·27	·79	·46	·36
Market Hall	1·43	·63	·32	·22	·44
St. Thomas'	1·35	1·24	·54	·53	·11
St. Martin's	1·09	1·29	·46	·33	·36
Edgbaston and Harborne ...	·52	·45	·58	·26	·29
Deritend	1·66	2·04	1·21	·70	·25
Bordesley	·86	·92	·65	·38	·33
Duddeston	1·51	1·30	1·15	·51	·51
Nechells	·89	1·62	·98	·45	·43
Balsall Heath ...	·67	·67	·51	·42	·10
Saltley	1·19	·77	·66	·38	·38

The sickness rate from Typhoid Fever for each of the municipal wards during the last five years shows, in nearly all, a fairly uniform decline. Ladywood, St George's, and Market Hall are exceptions, but the slight increase in the prevalence in these is markedly compensated for by the decrease elsewhere. This comparative freedom of the City from this disease, which is always associated with filth in one form or another, is specially gratifying in view of the efforts which are being made to improve the sanitary condition generally of the City, and especially in regard to the cleansing of courtyards and the disposal of household sewage.

Typhoid fever mortality in City Hospital and at home.

One hundred and nine cases were removed to the City Hospital during the year, a percentage of 52·2. Of those cases thus removed 24 died of Typhoid Fever or other disease, accounting for a fatality of 22·8 per cent. Of the cases treated at home or in other institutions 18 died, giving a fatality of 18 per cent.

Amongst the former group the Medical Superintendent states that in three instances there was no evidence of Typhoid Fever, and in all three death is ascribed to Pneumonia. All were in children under ten years of age.

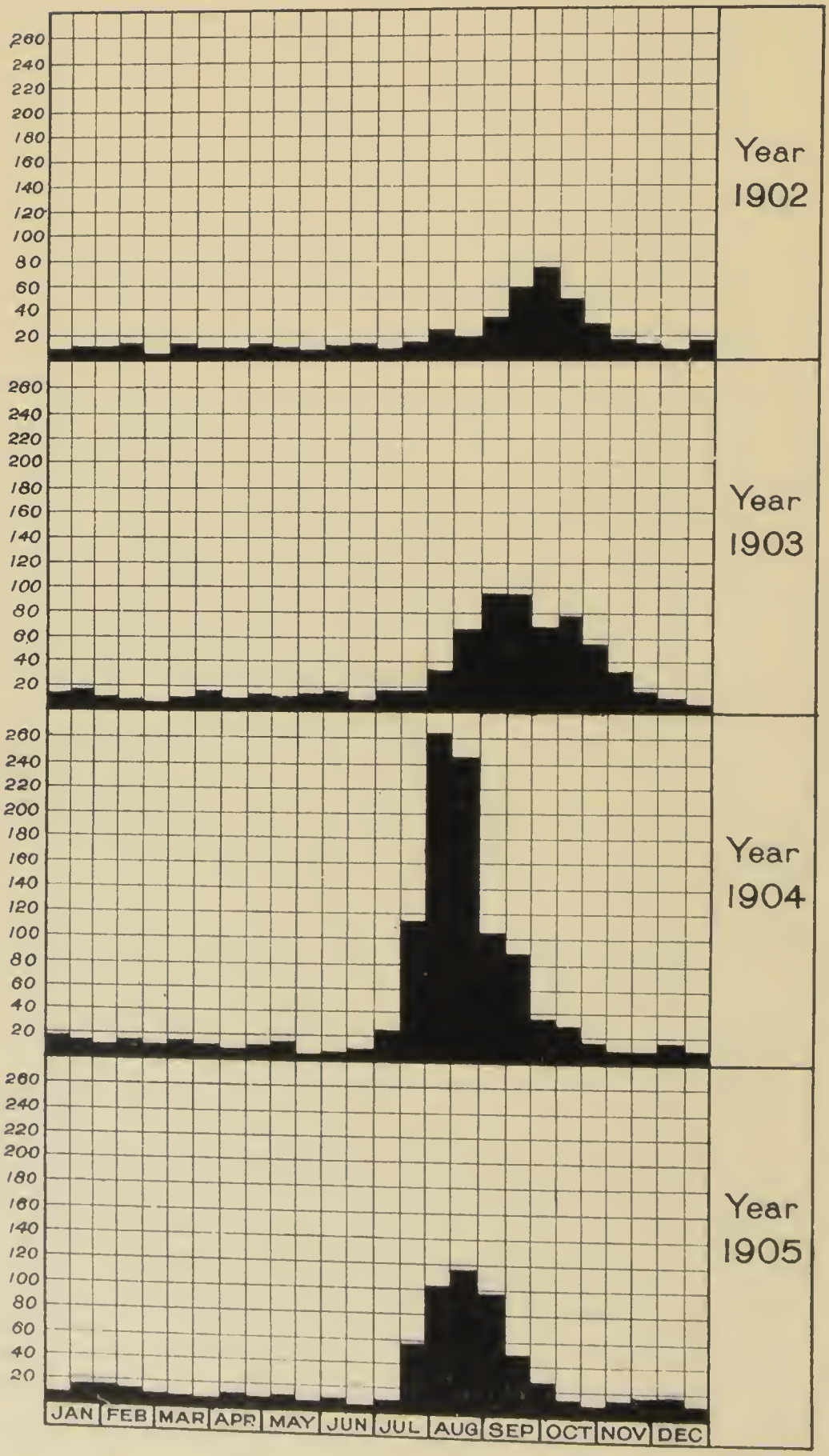
Typhoid fever. Mistaken diagnosis.

Of the 109 cases notified during the year and removed to the City Hospital 16 were found not to be suffering from this disease at the time of admission. Of these, none developed the disease in hospital.

CHART No 5.

Deaths from Diarrhœa and Enteritis in each Fortnight of the Years.

1902, 1903, 1904, 1905.



The next table gives the hospital diagnosis and certain other details in the history of these cases.

CASES ADMITTED TO HOSPITAL AS TYPHOID FEVER DURING 1905 WHICH PROVED NOT TO BE SUCH.

	No. of Cases.	Deaths.
Pneumonia	9	4
Bronchitis and Pneumonia	2	—
Bronchitis	2	—
Pleurisy	1	—
Gastric Catarrh	1	—
Sapræmia (after abortion)	1	—
	16	4

The remarks in the report for 1904 concerning the cause of the outbreaks of Typhoid Fever during that year equally apply to the same in 1905. A few instances of personal infection, notably in the case of one family in which six patients were reported, occurred. Otherwise no common cause could be proved.

Widal's test for typhoid fever.

The Department of Pathology at the University examined 123 specimens of blood serum for Widal's reaction in cases of suspected Typhoid Fever with a positive result in 37 cases. Amongst those cases notified, bacteriological confirmation of the diagnosis was obtained in this way in 13 per cent. The cost of this bacteriological work during the year was £15 7s. 6d.

DIARRHŒA AND ENTERITIS.

Diarrhœa and enteritis.

The number of deaths from diarrhœa was 463, and from enteritis 177, making a total of 640, as compared with 1,110 in the previous year. The chart on the opposite page shows diagrammatically the number of deaths from this disease during each fortnight of the year, together with a corresponding representation of the deaths in the two preceding years.

Probably almost the whole difference between the number of deaths in 1905 and those in 1904 is due indirectly to climatic conditions. Had the warm dry weather which existed last July continued but a few weeks longer the mortality must have been relatively very high. Fortunately at the beginning of August a considerable rainfall occurred, with

variable and cooler weather. The mean temperature of the air, which had risen to 66°·7 during the week ending the 15th of July, fell to 59°·1 during the week ending August 5th, and practically did not rise above this during the remainder of the summer. The rainfall during the first fortnight in August was about two inches, and during the following four weeks from half an inch to one inch of rain fell during each week.

Diarrhœa at ages.

The ages of persons dying from diarrhœa and enteritis during each quarter of the year are set out in the following table :—

DEATHS FROM DIARRHŒA AND ENTERITIS.

	1st Quarter.	2nd Quarter.	3rd Quarter.	4th Quarter.	Year.
Under 1 month	3	6	12	3	24
Between 1 and 2 months	9	2	41	5	57
" 2 and 3 "	10	8	46	7	71
" 3 and 4 "	11	3	47	7	68
" 4 and 5 "	4	4	44	8	60
" 5 and 6 "	4	4	34	3	45
" 6 and 7 "	3	3	35	3	44
" 7 and 8 "	2	2	36	1	41
" 8 and 9 "	1	2	19	2	24
" 9 and 10 "	1	1	23	2	27
" 10 and 11 "	3	1	13	0	17
" 11 and 12 "	1	1	8	2	12
Total under 1 year ...	52	37	358	43	490
Between 1 and 2 years ...	8	5	53	18	84
" 2 and 3 " ...	1	0	7	2	10
" 3 and 4 " ...	0	1	2	0	3
" 4 and 5 " ...	0	1	0	1	2
Total under 5 years ...	61	44	420	64	589
Between 5 and 10 years...	1	0	2	0	3
" 10 and 15 " ...	0	0	0	0	0
" 15 and 20 " ...	0	0	0	1	1
" 20 and 25 " ...	0	0	1	0	1
" 25 and 35 " ...	0	2	2	0	4
" 35 and 45 " ...	2	3	1	0	6
" 45 and 55 " ...	1	0	0	2	3
" 55 and 65 " ...	2	2	4	1	9
" 65 and 75 " ...	3	2	8	1	14
" 75 and 85 " ...	1	3	3	1	8
At 85 years and upwards	0	0	1	1	2
All ages	71	56	442	71	640

Diarrhœa and temperature and rainfall.

The number of deaths which have occurred from diarrhœa and enteritis, together with the mean temperature and rainfall in each of a series of years, will be found in the following table :—

	Deaths during each year.			During 3rd Quarter.			
	Diarrhœa.	Enteritis.	Total.	Death-rate per 1,000.	Mean Temperature.	Rainfall in inches.	Days with ·010 or more of rain.
1887 ...	550	60	610	1·46	58·9	5·62	31
1888 ...	305	60	365	0·87	55·7	9·58	49
1889 ...	465	56	521	1·23	57·6	6·62	39
*1890 ...	434	101	535	1·23	58·0	7·39	42
1891 ...	320	107	427	0·99	57·3	7·27	48
†1892 ...	443	104	547	1·13	57·0	9 22	41
1893 ...	828	200	1028	2·11	60·0	5·61	46
1894 ...	256	148	404	0·82	54·9	7·18	45
1895 ...	605	282	887	1·79	59·6	6·45	44
*1896 ...	589	309	898	1·76	57·7	7·33	47
1897 ...	923	521	1444	2·86	58·3	7·24	35
1998 ...	668	544	1212	2·37	58·7	4·50	21
1899 ...	831	580	1411	2·74	61·2	4·98	34
1900 ...	613	409	1022	1·97	60·2	5·43	31
1901 ...	792	206	998	1·91	60·7	5·91	26
*1902 ...	412	122	534	0·99	57·1	7·51	47
1903 ...	588	136	724	1·36	57·4	9·85	49
1904 ...	955	155	1110	2·07	58·8	5·75	31
1905 ...	463	177	640	1·19	58·4	7·33	34

* 53 weeks. † Enlarged City.

Diarrhœa in other towns.

The mortality from diarrhœa in other towns as compared with Birmingham is shown in the following table:—

Mean of 76 great towns ...	·83	West Bromwich ...	·92
London	·73	Birmingham ...	·83
West Ham	1·59	Aston Manor ...	1·12
Portsmouth	·86	Leicester	·93
Southampton	·62	Liverpool	1·35
Northampton	·46	Bootle	1·52
Plymouth	·80	Manchester ...	1·15
Bristol	·36	Salford	1·21
Burton-on-Trent	·29	Leeds	·79
Wolverhampton	1·28	Sheffield	1·52

Prevention of diarrhœa.

Towards the end of July, at the time when it was anticipated that Diarrhœa would commence to be prevalent, and when in all probability it would have done so but for the cold wet weather coming on, 50.000 copies of the handbill printed below were distributed from house to house in the poorer class districts in Birmingham.

HOT WEATHER AND INFANT DEATHS.

The Health Committee desire to draw atttention to the enormous mortality which occurs every summer from Epidemic Diarrhœa in Birmingham during August and September (nearly 1,000 deaths). Most of these deaths ought not to occur. Parents and guardians should, therefore, during the warm season be most careful to carry out the following:—

Prevention of diarrhœa (*continued*).

1. Breast-fed infants should not be weaned during this period.

2. Bottle-fed infants should only have milk which has been bought in a fresh condition, boiled, and stored in a clean and cool place.

3. The jugs and feeding-bottles used for the milk should be kept scrupulously clean by scalding.

4. Infants should not be allowed to crawl on the floor or court-yard where they can pick up dirt. Their clothing, &c., should be kept very clean so as to prevent their sucking anything dirty.

5. Diarrhœa is so rapidly fatal in young infants that whenever it commences medical advice should be sought at once and valuable time not lost.

6. By using common sense in keeping the house, yard, and everything in connection with young children in a clean condition, it is probable that a large number of deaths can be easily prevented, and it will be greatly to the advantage of the citizens if a special effort is made during the short period the warm weather lasts.

JOHN ROBERTSON,

Medical Officer of Health.

The Council House,
Birmingham.

In addition to these, there was put up in every court-yard a large poster drawing attention to the method of preventing summer Diarrhœa. The Health Visitors had also received the most definite instruction earlier in the year as to paying particular attention to houses where young children were living, with a view to giving the necessary directions to prevent the disease. There seems to be some evidence that these precautions had a certain effect in reducing the mortality, and that though the meteorological conditions influenced it to the greatest degree the precautions taken by the Department did also have their share.

Infantile diarrhœa and methods of feeding.

All the deaths from Infantile Diarrhœa were enquired into by the Health Visitors, and the table on the opposite page shows the method of feeding employed in the case of infants under six months old who succumbed to the disease during the third quarter, when Diarrhœa usually becomes very prevalent.

METHODS OF FEEDING THE INFANTS UNDER SIX MONTHS OLD, WHO DIED DURING THE THIRD QUARTER OF 1905.

AGE.	Number of Deaths.	Breast Alone.	Breast with Spoon Food.	Breast with Bottle.	Bottle with Cow's Milk Alone.	Bottle withCow's Milk and other Foods.	Bottle with Condens'd Milk only.	Bottle with Condens'd Milk and other Food.	Other Foods from Bottle or with Spoon.	Boat Bottle used.	Tube Bottle used.
Under 1 month	8	0	1	1	4	1	1	—	—	3	4
1 and under 2 months	33	6	6	3	10	2	5	1	—	7	14
2 " 3 "	31	5	4	1	12	4	2	3	—	8	14
Total under 3 months	72	11	11	5	26	7	8	4	—	18	32
3 and under 4 months	38	2	1	3	21	7	2	2	--	24	11
4 " 5 "	45	3	3	3	21	7	4	2	2	13	24
5 " 6 "	23	0	2	0	14	4	3	—	—	4	17
Total 3 to 6 months	106	5	6	6	56	18	9	4	2	41	52
Total under 6 months, 1905 ...	178	16	17	11	82	25	17	8	2	59	84
Total under 6 months, 1904 ...	408	37	14	50	194	67	25	12	9	71	279

INFLUENZA.

Influenza.

Sixty-three deaths were due to Influenza, as compared with the following numbers during the last ten years:—

1896	41*
1897	59
1898	89
1899	150
1900	185
1901	90
1902	76*
1903	63
1904	68
1905	63

*53 weeks.

The year appears to have been one in which this type of infectious disease was not very prevalent. Most of the deaths occurred among persons over 25 years old.

ERYSIPELAS.

Erysipelas.

The number of cases notified and of deaths registered from this disease during the last ten years are set out below:—

	Cases.	Deaths.
1896	782* ...	21*
1897	585 ...	21
1898	637 ...	15
1899	629 ...	21
1900	678 ...	26
1901	726 ...	23
1902	762* ...	30*
1903	644 ...	22
1904	597 ...	29
1905	595 ...	31

* 53 weeks.

During recent years the utility of having made this disease a notifiable one has been under discussion. From the administrative point of view it seems very doubtful whether it is necessary to take any notice of the great majority of the notified cases. Except where the disease breaks out in houses where children are about to be vaccinated, or where other surgical illnesses exist, there is very little value in visiting the cases. As in former years, the deaths were mainly amongst young children and elderly people. The fatality rate was 5·2 per cent., as compared with 4·9 per cent. in the previous year.

PUERPERAL FEVER.

The notified cases and deaths from Puerperal Fever are shown in the following table :— Puerperal fever.

	Cases.	Deaths.
1896	31* ...	21*
1897	17 ...	9
1898	24 ...	14
1899	30 ...	14
1900	39 ...	26
1901	32 ...	28
1902	35* ...	22*
1903	31 ...	21
1904	36 ...	27
1905	39 ...	24

*53 weeks.

During the last five years the proportion of deaths registered to cases notified has been as follows :—

1901	87·5 %
1902	62·8 %
1903	67·7 %
1904	75·0 %
1905	61·5 %

The deaths from Puerperal Fever were in the proportion of one in every 658 births recorded during the year. In addition to these deaths there were 39 others registered as due to diseases and accidents of childbirth, and taking the whole of these deaths it would appear that one in every 251 women confined during the year died in childbed. It is hoped that the operation of the Midwives Act will reduce the number of deaths resulting from childbirth.

MIDWIVES ACT, 1902.

The first executive part of this Act came into operation on the first day of April, 1905. This part is as follows :— Midwives Act.

"From and after the first day of April, 1905, any woman who, not being certified under this Act, shall take or use the name or title of midwife, etc., ... shall be liable, on summary conviction, to a fine not exceeding £5."

From the 1st of April, 1905, two classes of women may practise midwifery (1) those who are certified under the Act and who may call themselves midwives, and (2) the uncertified women who are not allowed to call themselves midwives, but who may practise midwifery as a profession and take fees until the 1st of April, 1910, after which date the Act requires that "no woman shall habitually and for gain attend women in childbirth otherwise than under the direction of a qualified medical practitioner, unless she be certified."

Midwives Act (*continued*).

Two courses were open to the Health Committee in connection with the Act. One was to hinder the certification of a number of the illiterate, extremely ignorant, and often dirty old women who carried on midwifery, with a view to preventing their practising; the other was to endeavour as far as possible to get all these women certified with a view to subsequent inspection. It was felt that the latter of these two proceedings was the better, inasmuch as it seemed preferable to be able to somewhat minutely control their practice rather than to leave them alone for five years.

It was therefore obvious that shortly after the passing of the Act our first procedure would be to get to know the names and addresses of all the women who were practising midwifery in Birmingham, with a view to getting them registered under two sets of conditions—those who are qualified by examination, and those who could claim to have been in bona fide practice as midwives for at least a year before the passing of the Act, and who were of good character. Each known midwife in the City was supplied with forms and notices. In addition, advertisements were put in the local newspapers on several occasions. In this way the midwives were informed as to the requirements of the Act as regards registration.

Number of midwives.

Between the 1st of April, 1905, and the 31st December, 221 midwives gave notice (as required by the Act of their intention to practise within the City of Birmingham. Of these, 193 resided in the city and 28 in the extra municipal suburbs. Of the total number, 21 were notified as midwives qualified by examination, and 200 as having been in bona fide practice prior to the passing of the Act.

Appointment of midwife visitor.

In December, 1904, Miss Bement was appointed as Midwife Visitor to assist in carrying out the requirements of the Act. Miss Bement is a qualified and registered midwife and a lady who has had a considerable experience in the teaching and training of midwives. During the early months of the year, she spent a considerable time in visiting all the midwives in Birmingham and in getting them to register.

Shortly after the 1st of April, the registered midwives were asked to come in groups of 30 or 40 to the Council House in order that they might have explained to them the provisions of the Act, how it was to be worked, and their duties under it. In addition to this, they were personally visited by the Medical Officer of Health at their homes with a view to seeing how their registers were kept, how they were equipped for their work, what condition of cleanliness existed, and to make enquiries in other respects.

Instruction of untrained midwives.

It soon became evident that the condition of ignorance which existed amongst the majority of the untrained midwives in regard to this very delicate and important work was remarkable. No less than 52 of them could neither read nor write; they had never had any instruction as to how they should conduct a confinement. Others who could read had, as their only guide a cheap translation of one of the works of Hippocrates. On one occasion 17 midwives were visited, and it was found that eight of them had this book. It is only fair to say that some of these untrained midwives were clean, capable women, who had picked up from their predecessors, from medical men, or from books, a very fair knowledge of their work, and appeared to be carrying it on under quite satisfactory conditions.

In order to give all the untrained midwives information in regard to the most elementary and essential parts of their work, classes were formed in ten different districts of the city, and each class was attended by from 12 to 20 midwives, who showed individually the greatest eagerness to gain a knowledge of their work, and who asked that similar classes should be held again later on. At each of these ten centres seven classes were held. The following is a syllabus of the more important subjects dealt with in the classes:—

1. Particulars to be ascertained by midwife on being engaged. Midwife to advise on general hygiene, clothing, diet, and exercise of patient. Care and cleanliness of midwife. Length of normal pregnancy. First practical instruction on reading thermometer. Practical demonstration with models showing mechanism of labour.

2. Description of internal organs. Symptoms of normal labour, including management of the three stages of labour. Second practical instruction with thermometer and models.

3. Management of normal lying-in period and treatment of various minor complications. Bandaging breasts. Routine of midwife's daily visit. Treatment of still-birth and methods of artificial respiration. Rule with regard to reporting still-births. Third practical instruction with thermometer and models.

4. Care of the infant. Dress of the infant. Infant feeding for the first 10 days. Fourth practical instruction with thermometer and models.

5. Rules with regard to grave complications and their treatment until the arrival of a medical man. Fifth practical instruction with thermometer and models.

Instruction of untrained midwives (*continued*).

6. Infant feeding. Various instructions with regard to douching, enemata, &c. Sixth practical instruction with thermometer and models.

7. Practical demonstration on cleansing and disinfecting of midwives' hands.

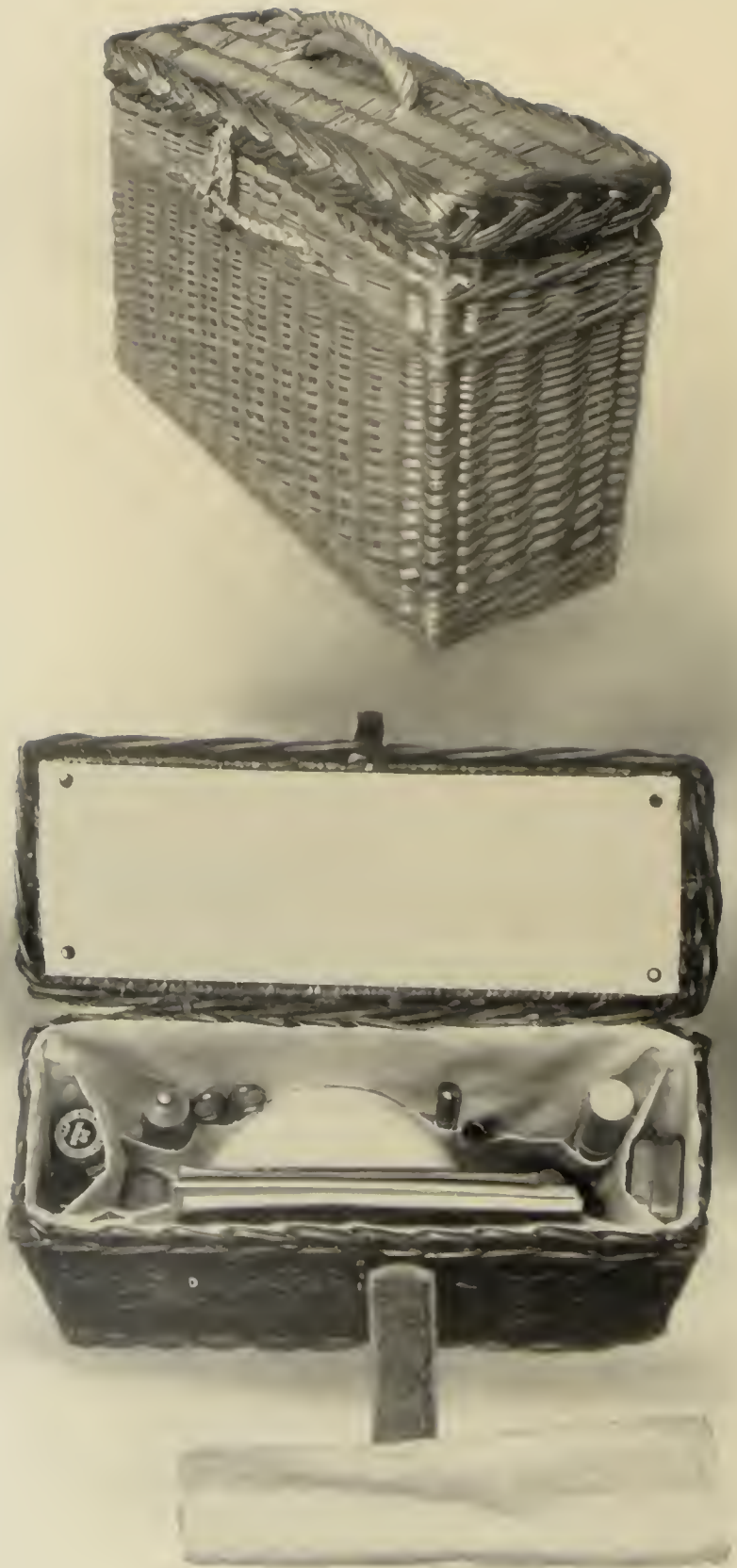
These classes have enabled a fairly accurate idea to be obtained as to those women who are suitable and those who are unsuitable. They have made it possible to impress upon midwives the necessity of cleanliness in their persons for it is almost as necessary that a midwife should have clean underclothing, as it is that she should have a clean overall on when she goes to a confinement. They have enabled the midwives to gain practical instruction in washing and disinfecting their hands, so that, except in the case of a few who did not attend the class, all the midwives know how to wash their hands and the degree of cleanliness of the hands that is required. These women also know how to use a disinfectant solution. They have been well cautioned about making too many examinations during labour, and they have been taught by means of a model the ordinary course of labour and what their duty is in regard to each stage, especially the important third stage. They have also had special instruction in their duty as regards the feeding and rearing of the child.

Midwives and feeding of infants.

In respect of the midwife's duty of giving instructions to the mother as to how she should feed and rear her child a special lecture was given to each class, and the enormous mortality amongst infants pointed to as being generally due to the ignorance of mothers. Each midwife who attended these classes undertook to do her best to get the mothers to suckle their children rather than artificially feed them, and to become a distributor of the booklets which the Health Committee had printed in regard to the feeding and rearing of infants. The midwife, whose advice receives considerable attention, will no doubt be able to do a very great deal of good in this respect, and even if the Midwives Act were good in no other way it is certainly beneficial in enabling such instruction to be given at the proper time.

Midwives' apparatus and basket.

Each midwife has been required to get all the apparatus which the rules of the Midwives Board say they must carry. In the case of the older women who will probably not be long in practice they have not been required to obtain a bag, but have been advised to get a basket. The idea of having a basket rather than a bag seems to have been much appreciated by these unqualified midwives, for already a large number of them have possessed themselves of a proper



basket. One of the features of this basket is that it is made of whole wicker and is absorbent only to a comparatively small extent. In any case of infection the whole basket can be soaked in disinfectant, and, therefore, very readily and efficiently disinfected; the lining is a removable one. Each basket contains the following apparatus:—

An enamel-ware basin for disinfectant solution.
A clean towel to be used by the midwife for her hands. (In certain of the houses it is almost impossible to get a towel which is quite clean.)

Apron or overall.	Thread.
Rotunda douche.	Lysol.
Rubber catheter.	Soap and nail brush.
Glass nozzle.	Book of Records of sending for medical help.
Antiseptic lubricant (Thymol).	
Thermometer (clinical).	Rules of Central Midwives Board.
Scissors.	Envelopes and pencil.

An illustration of the basket will be found on the opposite page.

Inspection of midwives' registers.

For the purpose of checking the midwives' registers, the following plan has been adopted. Every week a list of names and addresses where births have been registered is sent to us. Immediately on the receipt of the list the Health Visitors are supplied with the addresses of the houses and visit all of them where there is a possibility of ignorance or carelessness occurring in the rearing of infants, with a view to giving the mothers the necessary instructions. At the time of such visit enquiry is made as to the name of the midwife who attended at the confinement. In this way we obtain information as to the number of births attended by any one midwife, so that it is possible for the Midwife Visitor to check the register kept by the midwife. Some of the time of the Midwife Visitor is occupied daily in entering these returns into our own register.

It has been found in practice not an easy matter to find the midwives at home. In the majority of cases it is almost useless to attempt to see any midwife at home during the forenoon, so that most of the Midwife Visitor's inspection work has to be done in the afternoon. Indeed, so many fruitless visits have been made that it has been found necessary to send a letter to the midwife stating that on the following day the Midwife Visitor would call for the purpose of examining her register, bag, etc., and asking her either to be at home at the hour mentioned, or to leave the address she has gone to and also her bag and register for inspection. In some cases the mothers who have been attended by certain midwives have been visited with a view of ascertaining how the latter carry out their practice.

Complaints against midwives.

In several instances action was taken against midwives for dereliction of duty. On June 6th I reported that a registered midwife, No. 246, was contravening the rules of the Central Midwives' Board in several ways:—(1) That at the time of a visit of the Medical Officer of Health to her house she was exceedingly dirty in her person, her clothing, and her hands. The Midwife Visitor also reported that on several occasions she had found her in a filthy condition, and that on one occasion she was in this filthy condition when she was in the act of returning from a confinement. (2) That she did not comply with the rules in carrying the necessary bag and articles specified by the Central Midwives' Board to confinements, and that the few things which she did carry were in a filthy condition even after she had been repeatedly warned. (3) That several mothers who had been attended by this midwife had signed statements to the effect that she did not at any time during the confinement use any disinfectant for disinfecting her hands or otherwise. (4) That these mothers also complained that this midwife did not visit them properly after having attended them in confinement. (5) That two of them complained that she was the worse for drink at the time of their confinement. (6) That in the case of one mother the midwife failed to send for medical help as required by the rules, with the result that this woman is possibly damaged for life through not receiving proper attention.

This midwife could neither read nor write, she was 70 years of age, and she lived in a house which was in a filthy condition, and the Health Committee after having investigated the charges brought against her came to the conclusion that a *primâ facie* case had been established and decided to report the matter to the Central Midwives' Board. The case was reported at once, and on the 4th of July a reply was received from the Secretary stating that the Board had resolved to proceed against the woman with the view to the removal of her name from the roll if the charges against her appeared to be proved.

In this letter the Secretary of the Board stated that he had written to two of the women in respect of whom the charges of negligence and drunkenness arose, asking them to attend and give evidence, their travelling expenses being defrayed by the Board. Both of these women happened to be people in very poor circumstances who, of course, were not prepared to go to London even if their travelling expenses were paid. The Secretary of the Central Midwives' Board then wrote asking us to procure declarations from these women as to such of the facts bearing on the case as were within their personal knowledge.

Complaints against midwives (*continued*).

On the 15th of July he again wrote, stating that he had received a letter from the midwife in question denying the charges made against her, and enclosing letters from the two women in question also denying the facts recorded in their previously signed statements.

On the 26th of July a letter was received from the Secretary of the Central Midwives Board stating that after careful consideration of all the facts of the case, including the midwife's written statement of defence, the Board resolved that her name be removed from the roll and that her certificate be cancelled.

This case has been recorded at some length to illustrate what appears to be a matter of considerable difficulty, viz. the administration of this part of the Act by a central authority in London, who have to depend entirely upon the local authority on the one hand and on the midwife and her witnesses on the other. The difficulty appears to be so great and the punishment at present so useless that in the subsequent cases coming before the Health Committee the midwives were warned, but not reported to the Board, as under any set of circumstances they can go on practising until the 1st of April, 1910.

On June 6th a charge was made against a registered midwife, No. 3302, for not sending for medical help in a case of difficult labour. In this instance the midwife reported a stillborn child and on enquiry it was found that the midwife was ignorant and illiterate. She ought to have recognised the condition of the patient and sent for medical help, and if this had been done, probably the child would have been born alive. In addition to this the mother was injured, probably permanently. This midwife attended before the Health Committee and was severely reprimanded.

On the same day a charge was brought against a registered midwife, No. 865. This woman attended a case of labour while she was herself suffering from an ulcerated leg. Her patient developed Puerperal Fever, and the midwife did not send for medical help. If she had had the most elementary knowledge of her work she ought to have known what her patient was suffering from. The patient in this case was very ill indeed for a long time. In view of all the circumstances the Health Committee decided to interview the midwife, and suspended her from practice until her ulcerated leg had quite healed.

On June 6th it was also reported that a registered midwife, No. 6612, had failed to take reasonable precautions to ascertain the existence of Puerperal Fever in one of her patients. This midwife attended a woman in her confinement, and apparently did not recognise that the patient

Complaints against midwives (*continued*).

was suffering from Puerperal Fever for a number of days, in fact not until the woman's husband called in a doctor. The woman in question suffered from all the typical symptoms of Puerperal Fever—rigors, abdominal pain, delirium, diarrhœa, etc., but notwithstanding this the midwife did not advise that a doctor should be called in. The mother in this case died two days after the doctor attended. A second case of Puerperal Fever occurred in the practice of this midwife. She attended before the Health Committee, and was severely reprimanded.

On October 23rd a midwife was reported for contravening Section 1 (1) of the Midwives Act, in that she was not a registered midwife, while at the same time she held herself out to be a person specially qualified to practise midwifery. This woman had a reputation in the district for the healing of ulcerated legs, and issued cards to the effect that she treated abscesses, bad legs, eczematous skin disorders, etc., and that at the same time she was a specialist in midwifery.

The Health Committee decided to take proceedings against this woman, and on the case coming into Court, the solicitor who represented her gave an undertaking that he would himself advise her to give up the treatment of bad legs, etc., or the practice of midwifery, and adopt one or the other calling. On this undertaking the magistrates dismissed the case on payment of costs.

On July 23rd, a charge was brought against a registered midwife, No. 5672, (1) that she had attended a mother who was suffering from Puerperal Fever, and had not advised that a medical man should be sent for, nor had she made any entry of this case in her register; (2) that her conduct had occasioned delay in obtaining efficient disinfection; (3) that after being requested not to attend any more labours for 14 days, she had attended other new confinements (one of these cases subsequently developed Puerperal Fever), and that she had used the same appliances in both cases of Puerperal Fever. After taking the whole of the evidence into consideration and interviewing the midwife the Health Committee severely reprimanded her.

On the 28th of November, the above midwife was again charged with dereliction of duty in carrying out the rules of the Central Midwives Board, in so far that, notwithstanding the fact that the Health Committee ordered her not to attend further confinements for a clear fortnight after ceasing attendance on the Puerperal Fever case, she did attend a case of still-birth at the same time she was attending the Puerperal Fever patient, and also that she had attended some three other confinements. One of the mothers who was confined subsequently developed Puerperal

Fever, this woman being the daughter of the midwife. It appeared that even in her own daughter's case she had neglected to send for a medical man when her daughter was obviously seriously ill. Complaints against midwives (*continued*).

This midwife again attended before the Health Committee, and it appeared that she was a very ignorant and stupid woman, and that she had misunderstood rather than wilfully gone against the Committee's instructions. For these reasons the Health Committee decided not to report the case to the Central Midwives Board, but to again warn her.

On November 28th, a charge of negligence was brought against a registered midwife, No. 1479. In this case the midwife had attended a woman who suffered from Puerperal Fever and also had a large abscess. While still attending this woman she confined a second patient, who subsequently developed Puerperal Fever and died. A Coroner's inquest was held on the body of this second patient, and in view of the finding of the Jury, the Health Committee decided that it was sufficient to have the midwife's clothing and apparatus properly disinfected and her practice stopped for 14 days.

On the 28th of November, the Health Committee passed the following resolution, the object in view being that it was obviously necessary to be able to suspend a midwife immediately on the occurrence of a case of Puerperal Fever, and not wait until a meeting of the Sanitary Authority could be convened:—"*Resolved*—That the Medical Officer of Health be authorised to temporarily suspend midwives from practice if such suspension appears to him to be necessary to prevent the spread of infection."

TUBERCULAR DISEASES.

The number of deaths from Tuberculosis in all its forms was 999, as compared with 1,071 in the previous year, and 1,025 in 1903. The table which is printed below shows ths number of deaths from each of the recognised forms of Tuberculosis since 1895:— Tubercular diseases.

DISEASE.	1895	*1896	1897	1898	1899	1900	1901	*1902	1903	1904	1905
Abdominal Tuberculosis ...	66	61	57	64	78	104	131	92	113	107	94
Tubercular Meningitis	94	76	79	102	63	56	88	63	73	73	68
Phthisis	718	694	679	718	841	847	903	874	754	806	759
Other forms of Tuberculosis ...	127	121	122	70	96	71	83	64	85	85	78
Total deaths ...	1005	952	937	954	1078	1078	1205	1093	1025	1071	999
Mortality rate ...	2·02	1·87	1·86	1·87	2·10	2·08	2·30	2·04	1·93	2·00	1·84

*53 weeks.

Tubercular diseases (*continued*).

The mortality-rate for the whole group during the year was 1·84 per 1,000, as compared with 2·00 per 1,000 in the previous year, and 1·93 in 1903. The germ which causes this disease gives rise to a larger number of deaths than from any other single cause known, yet the fact undoubtedly remains that we are at present living in an age in which the deaths from Tuberculosis are much less numerous than they were thirty or forty years ago, while the reduction during the last fifty years is nearly equal to 50 per cent.

As has been pointed out in previous reports, Phthisis is probably the form in which Tuberculosis becomes the most potent source of danger. In some of the other forms, such as Tuberculosis of the Back-bone (Hunch-back) it is questionable whether the disease is in any way infectious. Taking Phthisis alone, the number of deaths during 1905 was 759, as compared with 806 in the previous year. The mortality-rate, therefore, from Phthisis was 1·40 per 1,000. This is one of the lowest rates for Phthisis which have yet been registered in Birmingham.

Phthisis among males and females.

The mortality amongst males during 1905 was very much greater than amongst females. Putting the deaths into rates per 10,000 persons living at each age, we get the results indicated in the chart on the opposite page. The chart shows in addition to the curve for Birmingham that also for Sheffield, as an example of another large manufacturing town, and also the curve for England and Wales.

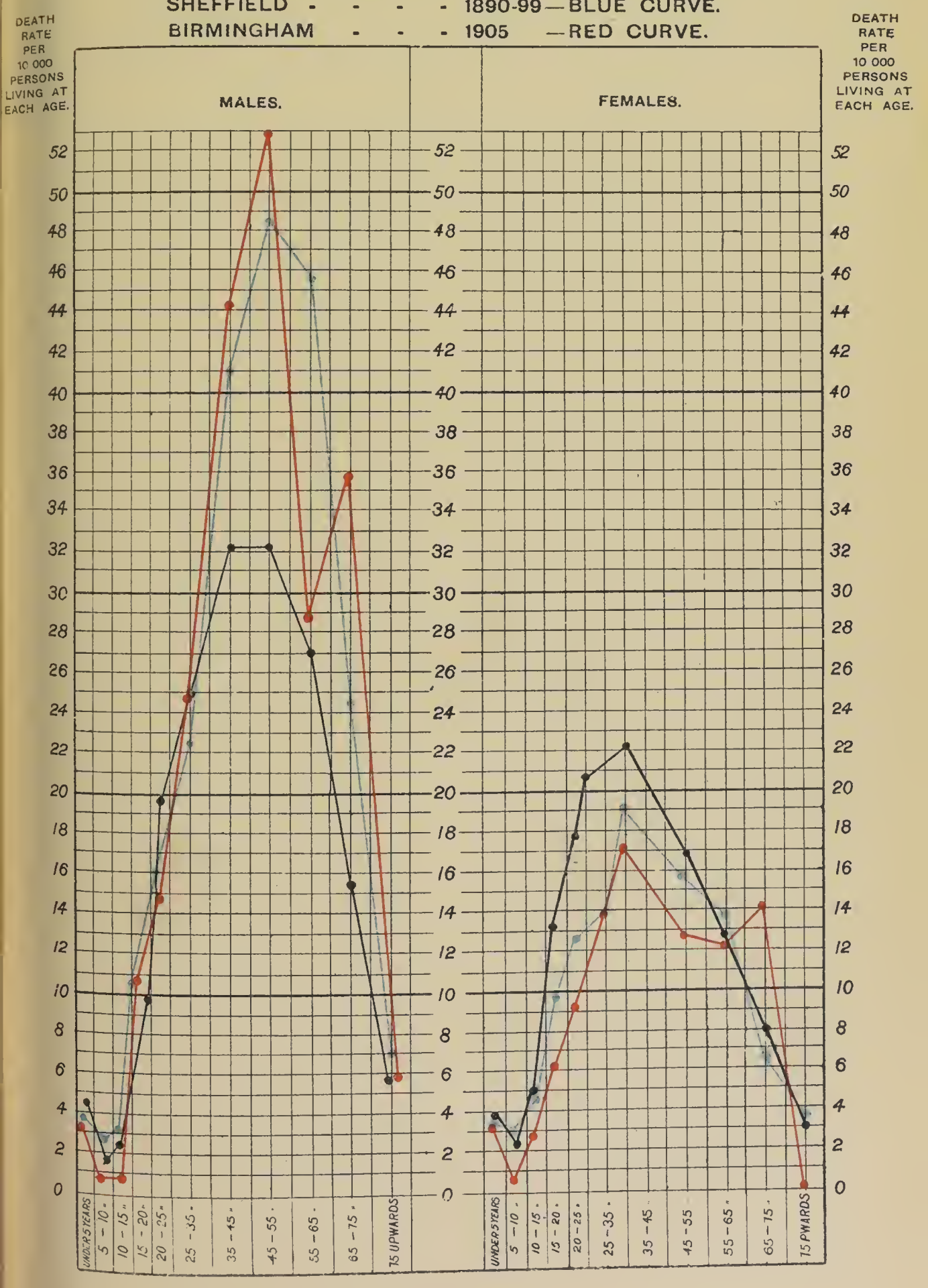
The chart indicates very clearly that there are certain influences at work among adult males causing an enormously greater Phthisis incidence than amongst females. Two prominent differences in the surroundings of men and women have been suggested as the cause—(*a*) workshop conditions, and (*b*) public house conditions. The decline in mortality has been greater amongst women than amongst men, and it has been pointed out that this may be due to the fact that a smaller number of women are influenced by bad workshop conditions than men, while a larger number of women are influenced by good housing and other home conditions, inasmuch as they spend a very much larger part of their time at home. In this respect it is somewhat notable that in the two towns referred to in the diagram the mortality amongst females is less than it is in England and Wales, pointing apparently to better home surroundings but worse conditions of work in the towns than in the country.

As stated above, it has been alleged that the uncleanly conditions which are to be found in a great many workshops

CHART No. 6.

Death Rates from Phthisis in several Age-groups.

ENGLAND AND WALES - 1890-99 — BLACK CURVE.
SHEFFIELD - - - - 1890-99 — BLUE CURVE.
BIRMINGHAM - - - 1905 — RED CURVE.



tend to spread Tuberculosis. It is a fact that in the majority of workshops the same degree of cleanliness is not maintained as in the dwelling-house of the ordinary artisan. Whether the home standard is feasible in the workshop it is not necessary to consider at the present time, but there is no doubt that a great many workshops seldom or never have the floors washed and cleansed, and that a larger number rarely have the benches and other parts of the workroom washed down, so that tubercular material readily becomes dry and powdered, and has every opportunity of spreading to the workers. It has also been alleged that the spitting nuisance in public houses exposes men to an amount of infection which women are not exposed to.

Phthisis and various occupations.

The next table shows the occupations, as far as practicable, of the persons who died from Phthisis :—

	1904.	1905.
Males.		
Soldiers, Sailors, etc.	4	9
Clerks, Warehousemen, etc.	28	33
Carters, Cabmen, Porters, etc.	22	19
Gardeners	—	4
Brass Workers of all kinds	53	50
Turners, Fitters, etc.	20	14
Cycle Makers	10	9
Iron Casters and Polishers	18	24
Sundry Metal Workers	49	42
Jewellers, Engravers, etc.	15	17
Building Trades	21	35
Furniture Trades	14	11
Glass and Pearl Workers	10	10
Leather Workers	7	8
Dressmakers, Tailors, etc.	6	8
Publicans and Barmen	13	13
Bakers	4	4
Butchers	—	3
Other Shopkeepers (Foods)	4	14
Other definite Trades	41	20
General Labourers	70	120
Other undefined Workers	92	25
Children under 14 years	17	17
Total	518	509
Females.		
Children under 14 years	14	13
Adults	274	237
Total	288	250

The mortality from Phthisis during 1905 in the large towns is not obtainable from the Registrar-General's summary except in regard to London, where the rate was 1·42 per 1,000. In Croydon the rate is stated to be 1·09 per 1,000. Speaking generally the Phthisis rate for Birmingham is relatively a high one.

Voluntary notification of phthisis.

During 1904 a resolution was passed by the Health Committee giving instructions for a scheme of voluntary notification to be put in operation, and such a scheme was commenced early in the year 1905. To each medical man in Birmingham a letter was sent, a copy of which is printed below:—

"Health Department,
"The Council House,
"*March 6th, 1905.*

"Dear Sir,

"VOLUNTARY NOTIFICATION OF TUBERCULOSIS OF THE LUNG.

"The Health Committee, with a view to limiting as far as possible the spread of Tuberculous infection, have instructed me to ask my medical colleagues to notify any cases of Tuberculosis of the Lung which may occur in their practice in the City. Such notifications will be treated as confidential, and the fees to be paid will be identical with those now paid under the Infectious Disease (Notification) Act.

"It is obviously important that only cases which are in an infectious condition should be so notified, and therefore, to facilitate diagnosis, arrangements have been made with the authorities at the University whereby any medical practitioner may send specimens of sputum for examination for Tubercle Bacilli free of charge. From experience elsewhere I think it advisable that such an examination should be made in most of the cases you intend to notify.

"The Health Committee hope that such voluntary notification will enable them

"(*a*) To deal with many of the housing conditions which contribute so largely to the causation of this disease.

"(*b*) To deal with the workshop and trade conditions, which also influence the spread of the disease.

"(*c*) To prevent a considerable amount of infectious matter from being scattered broadcast, as at present

"(*d*) To take appropriate measures for disinfection when this is necessary.

"(*e*) Incidentally to amass evidence as to the chief causes which are in operation in this City in the spread of Tuberculosis, so that further action may be taken in reducing the present enormous mortality of over 1,000 lives every year.

"I herewith enclose book of notification forms, and also outfit for collecting specimens of sputum for examination, and shall be much obliged if you will notify suitable cases to me. Voluntary notification of phthisis (*continued*).

"Believe me,
"Yours faithfully,
"JOHN ROBERTSON."

As was anticipated, the number of cases notified to begin with was not by any means a large one. The number, however, has risen, and the number of medical men who send in notifications has now increased until it may be said that the request for notifications is being complied with by the medical men in Birmingham in a quite satisfactory manner. It is obvious that the cases which most require the attention of the Sanitary Authority are those among the more careless and ignorant of the population, and these are reported in large numbers by the parochial and hospital authorities in the city. Among the artisan classes a considerable number of cases have been notified, but among the middle and better classes only comparatively few have been notified. It will be recognised, however, that among the middle and upper classes such notifications are not necessary, because in the great majority of cases the patients already receive the necessary instruction in the way of preventing their becoming sources of infection to others.

Each notified case was, with two or three exceptions, visited by the inspector appointed for this purpose. Verbal instructions were given, and a copy of printed rules left with a view to preventing the patient from spreading infection to others. The inspector also made careful enquiries as to the necessity of disinfecting the house or room occupied by the patient, and in cases where a death occurred insisted on the disinfection of the room or whole house. The visits of the inspector have been well received by the people, notwithstanding the fact that in a few cases his work has been particularly difficult and delicate.

The number of cases visited by the inspector where no knowledge appeared to exist of the infectiousness of Tuberculosis was considerable. For instance, it was frequently found that patients in a highly infectious condition slept in the same bed with other persons who were free from infection. In other cases persons in a similar highly infective condition were selling food in a shop, while in yet another series of cases the patients appeared to have no knowledge of the fact that their spit contained the germ of Tuberculosis, for they were spitting on the floors and walls of their houses.

The total number of cases notified during the year was 666. As this number, however, refers only to part of the

Voluntary notification of phthisis (*continued*).

year, and as the enquiry into each case was not made on quite the same lines throughout the whole period, the information respecting these cases is not quite suitable for detailed investigation. In future years, however, it is hoped that a good deal of useful information may be obtained from the enquiries made by the Tuberculosis Inspector.

On September 26th the Health Committee gave instructions for a report to be prepared on the desirability of establishing a sanatorium for the City with a view to curative and preventive treatment.

OTHER CAUSES OF DEATH.

Syphilis.

Syphilis.—The number of deaths from Syphilis was the same as in 1904, that is, 22. Of these 17 were of infants under one year of age, and four occurred amongst adults. The havoc wrought by this disease, however, is by no means represented by the mortality figures, as this is one of the debilitating diseases which render a person susceptible to a large variety of other complaints which are certified as the primary cause of death. In its later stages among adults syphilis is often difficult to diagnose as the primary cause of death, and more frequently it is dangerous for a medical man to certify it as the primary cause.

Alcoholism.

Alcoholism.—Three deaths only were certified as due to acute alcoholism, as compared with eight in the previous year, while 16 were certified as due to chronic alcoholism, compared with 24 in the previous year. The figures for the past ten years are set out below, and it will be noted that so far as certified deaths are concerned there appears to be some evidence that the number is decreasing.

Deaths from Alcoholism.

1896	...	57*	1901	...	44
1897	...	56	1902	...	24*
1898	...	49	1903	...	31
1899	...	43	1904	...	32
1900	...	27	1905	...	19

* 53 weeks.

Closely allied to the above disease as a cause of death is Cirrhosis of the Liver, and in the statement below is set out the number of deaths from Alcoholism and Cirrhosis during each of the last ten years.

			Alcoholism.	Cirrhosis of Liver.	Total.
1896	...	...	57*	80*	137*
1897	...	...	56	112	168
1898	...	...	49	91	140
1899	...	...	43	92	135
1900	...	...	27	111	138
1901	...	...	44	94	138
1902	...	...	24*	95*	119*
1903	...	...	31	100	131
1904	...	...	32	71	103
1905	...	...	19	80	99

* 53 weeks.

Cancer.—The mortality figures from this dreaded disease are as follows:— Cancer.

	Total deaths from Cancer in Birmingham.	Death-rate per 1,000 in Birmingham.	Death-rate per 1,000 in England and Wales.
1896 ...	346* ...	·68 ...	·76
1897 ...	376 ...	·74 ...	·78
1898 ...	342 ...	·67 ...	·80
1899 ...	386 ...	·75 ...	·83
1900 ...	368 ...	·71 ..	·83
1901 ...	395 ...	·76 ...	·84
1902 ...	383* ...	·72 ...	·84
1903 ...	413 ..	·78 ...	·87
1904 ...	400 ...	·74 ...	·88
1905 ...	437 ...	·81 ...	—

* 53 weeks.

It will be noticed that the number of deaths registered during the year was larger than in any previous year, and also that the mortality rate of ·81 per 1,000 people living was greater. That this is no exception is indicated by the figures in the last column of the above table, showing the death-rate per 1,000 in England and Wales. The Birmingham figures appear to be slightly less than those for England and Wales, but in both columns during the past ten years there has been a regular increase. The sex and age distribution of the deaths are noted below:—

	Deaths from Cancer during 1905. Males.	Females.	Total.
Under 1 year	0	0	0
1 and under 5 years	0	0	1
5 " 10 "	0	0	0
10 " 15 "	0	2	2
15 " 20 "	3	1	4
20 " 25 "	1	1	2
25 " 35 "	5	14	19
35 " 45 "	10	35	45
45 " 55 "	42	52	94
55 " 65 "	65	69	134
65 " 75 "	43	55	98
75 " 85 "	17	16	33
85 and upwards	0	5	5
Total	186	251	437

Cancer death-rates in wards.

The next statement shows the Cancer death-rates in the different Wards in the last five years:—

	1901.	1902.	1903.	1904.	1905.	Mean of five years.
Rotton Park	·53	·54	·77	·97	·87	·73
All Saints'	·80	·72	·66	·77	·88	·76
Ladywood	·88	·72	1·07	1·03	1·01	·94
St. Paul's	1·07	·90	·96	·57	·96	·89
St. George's	·61	·78	·93	·39	·59	·67
St. Stephen's	·67	1·01	·59	·64	·77	·74
St. Mary's	1·26	·69	·74	·38	·71	·75
St. Bartholomew's	·82	·59	·87	·85	·73	·77
Market Hall	·82	·63	·63	·76	·88	·74
St. Thomas'	1·20	·91	·75	·37	·81	·81
St. Martin's	·84	·62	·58	·86	·85	·75
Edgbaston and Harborne ...	1·01	·90	·86	·96	1·00	·94
Deritend	·65	·86	·83	·79	·93	·81
Bordesley	·62	·59	·56	·70	·58	·61
Duddeston	·46	1·05	·85	·72	·90	·80
Nechells	·65	·66	·71	·66	·64	·66
Balsall Heath	·88	·69	1·07	·87	·99	·90
Saltley	·47	·66	·62	·58	·66	·60

Premature birth.

Premature Birth.—The number of infants whose deaths were certified as due to premature birth during 1904 was 304, which is a considerably smaller number than in any of the previous ten years. In the following table are shown the death-rates from this cause in Birmingham and in England and Wales:—

	Deaths.	Death-rate per 1,000. Birmingham.	England and Wales.
1896 ...	384 ...	·76 ...	·56
1897 ...	425 ...	·84 ...	·57
1898 ...	372 ...	·73 ...	·58
1899 ...	367 ...	·71 ...	·58
1900 ...	353 ...	·68 ...	·57
1901 ...	349 ...	·67 ...	·57
1902 ...	361 ...	·67 ...	·57
1903 ..	365 ...	·68 ...	·57
1904 ...	377 ...	·70 ...	·58
1905 ...	304 ...	·56 ...	—

In addition to the deaths from prematurity there were a large number of deaths of infants from debility at birth (314), atelectasis (32), congenital defects (59), want of breast milk (23), atrophy, debility and marasmus (222), convulsions (128). Excluding the deaths from convulsions, we have a total of 954 who died from prematurity or infantile debility shortly after birth. These represent one death in every 17 children born during the year. As has already been pointed out, there is a good deal of evidence that this debility is due to defective nutritional conditions on the part of the mother.

Bronchitis.—The number of deaths from this disease during 1905 was smaller than previously, the total number being 878 as compared with 1,073 in the previous year. The death-rate from this disease in Birmingham and in England and Wales for ten years is shown below :— Bronchitis.

	Death-rate per 1,000. Birmingham.	England and Wales.
1896	2·11 ...	1·53
1897	2·10 ...	1·50
1898	— ...	1·48
1899	— ...	1·61
1900	— ...	1·69
1901	2·06 ...	1·36
1902	1·88 ...	1·32
1903	1·69 ...	1·11
1904	2·00 ...	1·25
1905	1·62 ..	—

It will be noted that the figures for Birmingham are uniformly higher than those for the whole of the country. This is what might be expected on account of the much less healthy conditions under which people live in towns than in country districts.

Acute Bronchitis was the cause of death of 260 children under five years of age, while chronic Bronchitis was the cause of death of 476 persons above the age of 45, that is to say, that in its acute form this disease mainly affects children, and in its sub-acute and chronic form it chiefly causes deaths among adults and old people.

Pneumonia.—Pneumonia caused 807 deaths. Of these 163 were reported as due to acute lobar Pneumonia, 337 to broncho-pneumonia, and 307 to one of the above forms of Pneumonia not defined. With Pneumonia as with Bronchitis young children under five years of age and elderly persons were chiefly affected. Among the former 422 deaths were due to this disease, that is, more than one half. The death-rates in Birmingham and in England and Wales are set out below :— Pneumonia.

	Death-rate per 1,000. Birmingham.	England and Wales.
1896	1·43 ...	1·15
1897	1·51 ...	1·12
1898	— ...	1·12
1899	— ...	1·25
1900	— ..	1·37
1901	1·73 ..	1·15
1902	1·60 ...	1·41
1903	1·45 ...	1·22
1904	1·67 ...	1·28
1905	1·49 ...	—

It will be noted that here also the mortality-rate is higher in the City than it is in the whole of England and Wales. The deaths from Bronchitis and Pneumonia among young children, together number 691. Probably a considerable number of these deaths could have been prevented had care on the part of the parents been taken, and therefore are to be looked upon as avoidable deaths.

Accidental suffocation.

Accidental Suffocation.—There were 82 deaths put down to suffocation as the cause of death. Seventy of these were in young infants who were overlaid in bed. As was pointed out in a previous report, there appears to be a large amount of carelessness in the Birmingham district in regard to the overlaying of children. The mortality-rate for Birmingham and for the whole of England and Wales is set out in the following figures, which show that the mortality from this cause per 1,000 of the population is three times as great in Birmingham on an average as in the whole of England and Wales.

Death-rate from Accidental Suffocation.

	Birmingham.	England and Wales.
1896	·13	·07
1897	·19	·07
1898	·21	·07
1899	·19	·07
1900	·19	·07
1901	·18	·06
1902	·14	·06
1903	·19	·06
1904	·18	·06
1905	·15	—

It is hoped that the work of the Health Visitors will in time lessen the number of infants who are overlaid. Possibly the reduction from 83 in 1904 to 70 in 1905 was directly or indirectly due to their efforts in advising that a cot should be provided in every home for the young infant. It is now possible to obtain quite a suitable cot for comparatively a few pence, so that the ground of expense need not be considered. A great many of the deaths occur in houses where apparently ordinary care is observed, and where drunkenness does not enter into the question. The most careful mother, if she be a heavy sleeper, is liable to cause the death of her infant unless she takes the precaution of placing it in a separate bed.

Violent deaths.

Deaths from Violence.—The Registrar General in his annual summary for the year 1905 gives the following comparative statistics as regards deaths from violence in Birmingham and in other large towns. The rate in Birmingham during 1905 was less than that in 1904.

DEATH-RATE FROM VIOLENCE.

London ...	0·65	Leeds ...	0·55
Liverpool ...	0·72	Sheffield ...	0·54
Manchester ...	0·73	Bristol ...	0·53
Birmingham...	0·60	Bradford ...	0·56

DEATHS IN PUBLIC INSTITUTIONS.

Deaths in institutions.

The Registrar General in his annual summary estimates that the total number of persons dying in public institutions in Birmingham during the year 1905 was 1,949 out of the 8,752 deaths which he credits to Birmingham, giving a percentage of the total deaths of 22·3. In London the percentage was 37·5, in Liverpool 29·9, in Manchester 23·2, in Salford 23·2, in Sheffield 17·6, and in Leeds 15·0. The towns surrounding Birmingham have percentages as follows:—Handsworth 6·1, West Bromwich 13·5, King's Norton 8·1, Smethwick 7·1, Oldbury 5·2, and Aston Manor 7·5.

DISINFECTION.

Disinfection.

The staff of disinfectors have disinfected the houses, clothing, etc., indicated in the following table:—

	1902.	1903.	1904.	1905
Houses disinfected after Small-pox ...	67	229	10	32
" " Puerperal Fever	29	27	38	35
" " Scarlet Fever ...	4355	2410	1508	1487
" " Diphtheria and Croup ...	527	656	553	636
" " Typhoid Fever...	486	309	237	190
" " Phthisis ...	490	461	564	649
" " Measles... ...	67	89	114	128
Beds and Mattresses disinfected	6583	5215	6564	6788
Sheets, Blankets and Counterpanes disinfected	15884	12182	11156	9877
Pillows and Bolsters disinfected	11215	7730	6986	6894
Garments disinfected	23685	27706	13167	9946
Carpets disinfected	1127	1469	2457	2164
Other Articles disinfected	3238	5654	9940	8937

Dr. McCrindle, who has supervised this work during the whole of the year, has devoted a considerable amount of attention to getting the work done as efficiently as possible, and this has entailed a good deal more care and time being paid to disinfection than in previous years, in the hope that as few cases as possible should be allowed to pass where any infection was left in the dwelling house, and also that as little damage as possible should be done to the articles disinfected.

CITY HOSPITALS.

City Hospitals.

The three hospitals provided for the reception of persons suffering from scarlet fever, typhoid fever, diphtheria, and smallpox have been kept in efficient working order during the whole of the year.

City Hospitals (*continued*).

At Little Bromwich certain additions have been made which will increase the efficiency and add to the economical working of the hospital. The staff laundry, which was provided for the small number of nurses required when the hospital was originally built, was found to be inadequate and inconvenient. It was therefore decided to extend the existing steam laundry by the addition of a wing, which would enable the staff clothing to be dealt with. This work has been completed, and new machinery of the most modern type provided.

The discharging block was found to be inadequate for the discharge of the number of patients who frequently had to be passed through one discharging block in the course of a day, and much delay and inconvenience was caused not only to the patients themselves, but to their friends, who came from a distance to receive them. The discharging block was therefore duplicated, and a waiting-room provided in which the patients would remain after they had had their final bath. This waiting-room, it is hoped, will be advantageous in preventing children being discharged immediately from the warm bathing and dressing rooms into the cold outside air, and often taken home on the top of a 'bus, giving rise to cold and especially to nasal discharge.

The old staff laundry has been turned into dining rooms for nurses and for servants, while part of the laundry is being converted into a laboratory for the proper investigation of cases. One of the dining rooms in question will always be available also for religious services. The nurses' home and new wards, which were mentioned in the report for 1904, have been put into use, and have proved to be exactly what was needed. In every way the accommodation provided at Little Bromwich is excellent and adequate.

The hospital at Lodge Road was kept closed for a considerable part of the year, during which time painting and other cleansing operations were carried out. It was opened in October for the reception of typhoid fever and diphtheria patients. By this arrangement it is possible to keep scarlet fever cases entirely separate from diphtheria and typhoid fever. This hospital has also been kept in good working order, and ready to be put into full use if occasion arose.

Regular visits have been paid to the Smallpox Hospital to ensure that the whole of the buildings were being kept in a good state of repair, and that at least a part of them were ready for use on the first notification of a case of Smallpox.

The following table shows the number of patients suffering from each disease admitted* since the hospitals were provided by the Corporation :— City Hospital (*continued*).

	Smallpox.	Scarlet Fever.	Diphtheria.	Typhoid Fever.
1874	194	...	...	...
1875	420	20	...	...
1876	11	38	...	...
1877	38	43	..	...
1878	20	424	...	...
1879	4	184	...	...
1880	16	170	...	...
1881	17	333	...	...
1882	105	627	...	...
1883	1090	638	...	...
1884	437	360	...	...
1885	81	204	...	...
1886	2	428	...	...
1887	10	438	...	...
1888	18	528	...	...
1889 ...	0	1801	...	...
1890	0	2525	...	...
1891	44	1225	...	...
1892	24	1131	..	...
1893	963	1339	...	...
1894	2050	1539	...	...
1895	98	2595	...	...
1896	14†	2812	...	...
1897	0	1641	...	...
1898	0	1083	...	...
1899	0	1052	...	...
1900	0	1814	...	...
1901	0	2959	...	229
1902	68	4534	...	119
1903	250	2455	...	14
1904	8	1437	...	119
1905	36	1489	321	109

* In a small percentage of the cases the disease proved not to be that for which the patient was admitted.

† Removed to Aston Smallpox Hospital, by arrangement with the District Council.

DISEASES OF ANIMALS COMMUNICABLE TO MAN.

The following report has been supplied to me by Mr. Malcolm in regard to the diseases of animals communicable to men :—

"*Glanders and Farcy.*—During the year 25 cases of this disease occurred in the City. This number shows a marked reduction in comparison with the 34 cases in 1904, but it is almost identical with the 24 recorded in 1903. The decrease here last year is in harmony with a general decrease throughout the country save that relatively it is greater in Birmingham. This is clearly shown on comparing these figures with the published statistics of the Board of Agriculture, whose returns for the last three years are as follows :— Glanders.

Year.	Number of Cases.
1903	2499
1904	2658
1905	2060

Glanders (*continued*).

"It would be misleading to regard this reduction as indicating in any sense a permanent decrease, a desideratum which under existing regulations can scarcely be anticipated. It is simply a reversion to the condition in 1902, when 2,040 cases were registered, and it may be looked upon merely as the ebb in one of a series of variable waves which mark the course of this disease, but afford no indication of any ultimate permanent recession. No other result could legitimately be expected under the existing permissive regulations. Yet no contagious disease of animals could be eradicated more readily. The general obligatory use of mallein in infected studs with the destruction, under reasonable compensation, of reacting so called non-clinical or latent cases would speedily effect its total suppression. Some time ago it was currently reported that the Treasury had at last resolved to find the means necessary for dealing with it in this way, and though this expectation has not been fulfilled, it is to be hoped the requisite action is only temporarily deferred. The omission to legalise and enforce these measures compulsorily, penalises most unjustly many Birmingham and other provincial horse owners. No sooner do they, often at heavy financial sacrifice, eradicate the disease from one stable than it may appear in another introduced by a latent case from an outside source—a source in all likelihood to continue so long as the unchecked dispersal of infected London and other studs is permitted. Under these circumstances the inability of local effort to cope with the disease is apparent. Nevertheless, most local horse owners when called upon, willingly, in every way in their power, assist the authorities in their endeavours to suppress the disease. If the London horse owners generally would follow provincial procedure the disease even under existing regulations might be successfully dealt with; but there is no hope of this. The cost of enforcing similar procedure, in a permanent centre of disease such as London, is so heavy that many owners are unable to bear it, and the liability to future infection is so great that many of those who can bear it decline to do so.

"Therefore there is no hope of eradicating the disease without further intervention by Government. When the necessary order is forthcoming there will soon be such a victory for the central authority that the wonder is it still remains to be achieved. How adversely the existing *laissez faire* method affects provincial horse owners becomes at once apparent on reviewing the origin of the Birmingham cases last year.

Analysis shows that 8 of the 25 were in boat horses, 14 in harness horses (13 cab and 1 parcel cart horse), and 3 in cart horses. In the boat horses the 8 cases represented 3 outbreaks, and in each case the disease was introduced from without, the horse first attacked being in all probability infected through contact with a so-called latent or undetected case on the canal side or in some stable outside Birmingham. With respect to the harness horses the 14 cases represent 7 outbreaks; of these, 2 outbreaks representing 4 horses were connected with outbreaks in the same stables in 1903, but in the remaining 5 outbreaks representing 10 cases there was no such connection. Evidence as to the origin of 2 of the 5 is lacking, but in the other 3 representing 8 cases the disease was introduced by recent purchases. Similarly with the cart horses all 3 cases occurred in stables never previously infected and in horses recently purchased, a fact again pointing to latent disease at purchase. Glanders (*continued*).

"Fortunately no case of glanders in man, so far as is known, occurred in 1905 in Birmingham, although in one case an Inspector accidentally, and in another case a stableman through ignorance, ran a grave risk. Considering the annual loss in horses from this loathsome and fatal disease, and the risk their attendants run, it is to be hoped the introduction of adequate measures for its eradication may not be much longer delayed.

"*Anthrax.*—In 1905 many more cases of suspected anthrax were submitted for examination than in any other recent year. Six of these cases were found to be affected with the disease, as compared with two in 1904. Anthrax.

"The cases last year were solely in cattle, differing in this respect from those in previous years, when usually one or more pigs were affected. The subjects, as is usual in anthrax, were all in prime condition. Each case occurred independently of the others, and it was impossible in any one to trace connection with its antecedent. Whence cases such as these arise is difficult, with any certainty, to say. In no instance were the circumstances such as to cast any suspicion on the buildings. With the exception of one case from a neighbouring district, where there had never been a previous case of anthrax, all the animals were at the time of attack housed in well paved regularly cleaned lairs, free from any previous record of the disease, and on the carcases there were no cutaneous lesions indicating external infection. The post mortem lesions, while

Anthrax *(continued).*

not absolutely conclusive, afforded some grounds for the belief that infection took place by way of the digestive tract. In this respect they do not differ from those usually seen in bovine anthrax. This, together with the sporadic occurrence of the disease, goes to support the view that anthrax as seen in this country is in the main due to contaminated food or water. No doubt cases may arise through either, but inference points chiefly to food, and particularly to food of foreign origin. During nine months of the year in our climate the anthrax organism rapidly becomes extinct after the death of its host, but in warm summer weather in cases that are improperly dealt with the organism by its spores may live indefinitely; propagation of the disease in this way however must be rare, for most cases under the existing stringent regulations are so handled as to preclude subsequent infection. Moreover, if infection from such cases were the rule enzootic outbreaks would not be so uncommon. On the other hand, the common occurrence of widely spread single cases in previously uninfected districts, points almost undubitably to imported infection, an inference which may help to explain the origin of such cases as those recorded last year. Further steps are now being taken for the purpose of obtaining more definite information on points such as these. Meanwhile, until the result is forthcoming, judgment must be suspended. Nevertheless whatever the percentage, that is due respectively to home and to foreign origin, may be, it is incumbent that, whenever a case occurs, adequate steps to preclude subsequent infection should follow. In the cases recorded above the carcases and offal were cremated, and the premises as well as all articles in contact with the diseased subjects thoroughly disinfected in order to prevent, if possible, transmission of the disease to man or animal. Fortunately in no case has there been any suspicion of transmission to either. In one case already referred to the infected carcase was removed from an outside neighbouring district into the city, where it was submitted for examination with the view to its ultimate sale as food. The neighbouring Local Authority subsequently prosecuted the owner for contravention of the Diseases of Animals Act, and as a sequel the owner and his bailiff were heavily fined.

"The increase of anthrax in our markets last year is not coincident with any general increase in the country. This is apparent from the Board of Agriculture's returns, which for the last three years, are as follows:—

Year.	Outbreaks.	Animals attacked.
1903	767	1143
1904	1053	1570
1905	967	1333

Anthrax (*continued*).

"One effect of the local increase of anthrax is to throw additional responsibility upon the Meat Inspectors. The difficulty in dealing with such cases is materially greater when the offal has been kept back and not submitted for inspection with the carcase, and should the case be a mild one and the animal killed at the outset, it requires the keenest perceptive faculty of the trained expert to relegate it with certainty to its proper position. In the interests of public health the carcases of moribund animals sent in for human food should be systematically condemned unless the history of the case points unmistakably to an accident, and the condition of the carcase is manifestly innocuous.

Rabies.

"*Rabies.*—It is a pleasure again to be able to report that no case of rabies occurred in this country in 1905. This clearly shows how thoroughly it has been stamped out. A number of dogs in Birmingham which had bitten people or had otherwise shown indications of a savage temperament were submitted by the police for examination, but in no case was there any real suspicion of rabies.

Epizootic lymphangitis

"*Epizootic Lymphangitis.*—No cases of this disease occurred in the City during last year. The energetic action of the Board of Agriculture and latterly of the Army in dealing with outbreaks seems at last to have had the desired effect of stamping it out. There is only one way of dealing with cases when they occur, and that is immediate slaughter. A perfect recovery is so dubious, any apparent recovery so protracted, and the risk of spreading the disease so great, that no treatment is warrantable. I have in my possession a specimen obtained from a case that after twelve months' treatment apparently recovered, for a period of eighteen months subsequently showed no clinical evidence of the disease, and then died from another cause. This specimen, obtained on post mortem from a small pectoral lymphatic abcess, simply teems with the cryptococci of contagious lymphangitis, a fact which goes to prove not only the futility but the subsequent risk of attempting treatment."

Handbill on anthrax.

During the year the following handbill was issued to men engaged in slaughtering cattle:—

Handbill on anthrax (*continued*).

"*Memorandum to Slaughtermen, Butchers, and others.*

"ANTHRAX.

"Every year several slaughtermen or butchers die, and others suffer from a dangerous illness, as a result of infection while dressing the carcases of animals affected with Anthrax.

"To prevent risk of contracting this very serious disease, slaughtermen, etc., are requested to adopt the following precautions:—

1. "Every person called in to dress the carcase of an animal which has had to be killed on account of a sudden illness, the nature of which is not known, must remember that if he has any cut or scratch on his hands, arms, neck, face, or other part of his body, he may inoculate himself by dressing such carcase. Men having such scratch or cut, however trivial, should positively refuse to dress such carcases.

2. "If on opening such a carcase the melt or spleen, the liver, the mesentery, and the gut appear darker and more bloodstained than usual, or if there are numerous bloodstained patches in the linings of the belly and chest, or if the gut contains black blood, or the glands or kernels in the belly are bloodstained and black, then the butcher or slaughterman should immediately cease dressing the carcase, and should report the same at once to the Meat Inspector.

3. "Any person who has handled an anthrax carcase should at once have his hands and arms well washed with a strong disinfectant, such as Jeyes' fluid or izal. He should then leave work and go home and change his clothing and boots, take a bath, and put on clean clothing and boots. He should wrap up his infected clothing and boots in a brown paper parcel, and send a postcard or telephone message to the Health Department asking that the clothing should be properly disinfected.

"In cases where it is inconvenient to go home and change at once, the Health Committee have arranged to receive butchers and slaughtermen at their Little Bromwich Hospital, and to have their clothing passed through the disinfecting apparatus, so that within three or four hours after arriving at the hospital it will be possible for them to leave with properly disinfected clothing.

"The object of this disinfection is to prevent infected matter on the clothing being capable of damaging the wearer long after he has ceased to be in contact with the infected animal. It is possible also to carry home the infection on clothing and to infect others.

"All persons who have assisted in slaughtering an anthrax infected animal should have their clothing disinfected.

"JOHN ROBERTSON, M.D.

"*Medical Officer of Health.*"

HOUSING OF THE WORKING CLASSES.

Housing of the working classes.

So many agencies are at work in Birmingham, as in other large cities, whose main object is the bettering of the conditions under which working class people live, that it is incorrect to accept that done by the City Council as the total amount in any one year. So far, however, as this report is concerned it is only necessary to review briefly what has been and is being done by the various committees of the City Council.

Before dealing with the work of 1905 it is advisable to again refer to certain of the health statistics with a view to having clearly in one's mind what part is played by house accommodation in the production of high mortality or high sickness rates, or physical inefficiency. In the first place, then, we have large districts in our City where the death rate amongst artisan classes is from 70 to 100 per cent higher than it is in other districts inhabited by artizan classes. In these districts also the mortality among infants under one year of age is approximately 100 per cent. higher than in other working class districts. If one visits such districts and takes a careful note of the physical condition of the people it will be found that they are not as robust and healthy in appearance as they ought to be.

It is very difficult to even approximately estimate how far these results are due to housing conditions alone; it would, for instance, be obviously erroneous to attribute all the bad conditions to the houses themselves. Undoubtedly gross carelessness and ignorance play an equally important part with bad housing accommodation, but there can be not the slightest doubt that the state of the houses and their general arrangement do directly or indirectly give rise to the bad conditions which have been quoted above.

It has been said that if the people from one of these areas were removed to another area and housed under modern conditions, they would speedily make their new homes as unwholesome as those they had left To a limited extent this may be true. Many of them, however, would at once adapt themselves to the cleaner and better conditions, while in the vast majority of others the children of the first or second generation would grow into more careful living and better citizens. All points then to the import-

Conference on housing (*continued*).

millions annually on the edueation of our ehildren, but we shall never get adequate results unless and until our ehildren are living under healthy conditions.

"It is true we have spent millions of pounds in demolishing slum areas and rebuilding barraek-like bloeks of dwellings, but all this enormous outlay ean never produce conditions of health equal to those to be produced in suburban areas. There is a great monotonous sameness about all these housing schemes. They are all most costly and expensive on account both of the value of the land acquired and also because it is an established fact that in building you can provide rooms in a two-storey cottage at less than half the eost per eubic foot of spaee than you can provide rooms in a five or six storey so-ealled 'model' tenement block. Such buildings will never do other than burden the rates and produee a race of feeble physique that can never be the backbone of the nation.

"The real remedy and the only one is dispersion from the centre and development of suburban areas, and I congratulate the City of Sheffield on leading the way by having already purehased two estates with this object.

"Private enterprise eannot accomplish this dispersion beeause the very basis of a suceessful dispersion depends on the possession of three requisites whieh munieipalities can provide mueh more readily and efficiently than they can be provided by private enterprise. These three requisites are eheap money, eheap land, and eheap rapid transit. Thanks to the various Acts passed relating to the housing of the people, municipalities can borrow money for acquisition of suburban areas within or without their boundaries, and so are in a position to provide the money required at the very cheapest possible rate. Private enterprise cannot compete with this. As to aequiring the suburban areas eheaply, here again municipalities have enormous advantages over private enterprise, but they must act with ordinary business aeumen, and purchase in advance of the flowing tide of population. They must not wait until the district has been opened up by trams, and a demand for building sites has arisen if they are to purchase suburban areas eheaply. Municipalities should always purehase their suburban areas when they can buy eheaply. It would be wise, prudent, and economical for munieipalities to hold all the land around their eentres, and would secure to the inhabitants of our towns the ever-inereasing 'unearned increment' from land values, the product of their own industry.

"The third requisite in the development of suburban areas is eheap rapid transit . . .

"Munieipalities, therefore, can to-day possess themselves of the three primary requisites for suecessful development of suburban areas—eheap money, eheap land, and eheap rapid transit all beyond the reach of private enterprise. How shall these remedies be applied?

"To-day land in the suburbs of cities and towns can be acquired for from £100 to £200 per acre. . . . When the flowing tide of population reaches suburban areas they cannot be acquired for less than £1,000 to £2,000 per acre, and in addition there would be endless difficulties in dealing with them on broad lines, in planning avenues, roads, streets, drainage, etc. The small capitalist builder will find difficulty in buying even at above inflated values of £1,000 to £2,000 per acre—just so little land as he can afford to deal with—and the individual citizen to secure land for a single house may have to pay up to 6d. a yard ground rent, or, say, equal to £3,600 an acre. Therefore, it is not wise for the citizens of a municipality to leave the suburban area to be acquired by speculators.

"The municipality having acquired land in the suburban area . . . the first care must be to have proper plans prepared showing the laying out of the area, avenues, roads, streets, parks, recreation grounds, sites for schools, churches, libraries, public halls, gymnasiums, baths, and so forth. The avenues of a width of not less than 80 feet; the roads of a width of not less than 60 feet, and the streets of a width of not less than 40 feet. The avenues and roads should be in the direction of making quickest and shortest connections with tramway service, railway station, and city or town, and the streets branching out from these to open up the side land.

"I am not suggesting that the full width of the road should be macadamised immediately when the estate is opened out for development, but rather that a strip about 18 feet down the centre should be macadamised, and also strips about 4 feet each down the sides for footpaths, the remainder being left in grass, with side gutters, as in the case of ordinary country roads, pending the building up of the estate. By adopting this course the roads could be planned of the full ultimate width without increased expense at the early stages of development, thus avoiding costly widening of the roads later on when wider roads were required.

"The building line to be set back 10 yards on roads and avenues, and 7 yards on streets. This is very important on the grounds of landscape gardening effect, but more important still on the grounds of health in providing free circulation of air and protection from the dust of the roads. The number of houses to be built must not be more than 12 or 10 to the acre—that is, 400 to 480 square yards of land to each house, including roadways, but not including parks, recreation grounds, or open spaces other than roads and gardens attached to the house.

"Calculating that the suburban area had cost, say £200 per acre, interest at, say, 3½ per cent., and sinking fund to repay in, say 80 years, would amount to £7 1s. per acre per annum.

Conference on housing (*continued*).

"There would be no charge for road-making or drainage, as these, under "The Private Street Acts," have to be paid by the frontagers. The extra cost entailed by the extra width of avenues and roadways could be met by the higher price per acre building sites on these handsome wide roads would command.

"The next question that will arise is: Shall the municipality build the houses or lease the land for building purposes? Experience has not shown that municipal building has proved always successful, whilst the capital required would be enormous, and the risk a speculative one. If trade at any time were bad and houses became empty, the burden on other property owners and the ratepayers generally would become unbearable, and only accentuate the then bad state of trade in the town. Still, if no other course were possible, the risk must be taken, for the many other advantages accruing to the whole community in health and social betterment.

"But, fortunately, there is another course open which is free from any speculative element, and that would be infinitely more profitable to the municipality, and requiring less than one-third the capital. The course that I venture to suggest as a preferable one would be to let the land at a ground rent based on cost price for a lease of 99 years, in large or small quantities, or even single house plots, and to offer to advance up to not exceeding one-fourth of the cost of building houses, but with a limit of not exceeding £100 to be advanced on any house.

"This would provide just the little help that is required to stimulate private enterprise in building, and without this help building operations might not be undertaken on a sufficiently large scale. The financing of the remainder of the cost of house building by private enterprise would be easily arranged by the builder, partly by mortgage and partly by credit, and partly by his own capital. The effect would be immediate and powerful."

Both the Housing Committee, the Health Committee, and other committees of the Council have all been engaged during the year in bettering the condition of existing houses, while the Health Visitors have been at work educating the people into keeping their houses in cleaner condition. The work done by the Housing Committee under the Housing of the Working Classes Acts has been very similar to that in the previous year.

The following tabular statements give the situation and number of houses dealt with under various sections of the Acts of Parliament.

Houses represented as unfit for habitation.

The first list shows the number of houses represented by the Medical Officer of Health as unfit for human habitation during the year 1905. This shows 793 houses

as compared with 1,119 in 1904, 304 in 1903, 450 in 1902, and 15 in 1901. The smaller number dealt with during 1905 than in the previous year is due to the fact that owing to the extent and nature of the negotiations in each case the Housing Department could not undertake all the work without additional staff. This was provided, and the work is now proceeding at a greater rate.

Houses represented as unfit for habitation (*continued*).

HOUSES REPRESENTED BY THE MEDICAL OFFICER OF HEALTH.

Property.	No. of Houses.	Date.
1 and 2 in 1 Court, Henns Walk	2	January, 1905
2 to 6 and 2 houses at rear, Henns Walk ...	7	January, 1905
309 to 315, Hospital Street, and 39 Court ...	8	January, 1905
71 to 75, Hospital Street, and 13 Court ...	12	January, 1905
77 to 83, Hospital Street, and 15 Court ...	15	January, 1905
85 to 91, Hospital Street, and 3 to 7 and houses at rear, New Summer Street	8	January, 1905
9 to 15, New Summer Street	4	January, 1905
282 to 288, Newtown Row, and 33 Court ...	8	January, 1905
20 to 23, Allcock Street, and 2 Court... ...	19	January, 1905
1, 2, 3 in 22 Court, New Summer Street ..	3	February, 1905
1 to 6, Tower Street, and 1, 2, and 4 Courts ...	21	February, 1905
5, 6, and 7 in 27 Court, Lower Tower Street ...	3	February, 1905
37 and 39, Brearley Street, and 15 Court ...	8	February, 1905
45 and 47, Brearley Street, and 19 Court ...	7	February, 1905
47 to 55, Rea Street, and 11, 12, 13, and 14 Courts	15	February, 1905
16 to 23, Holland Street, and 3 and 4 Courts ...	18	February, 1905
23 and 24, Garbett Street, and houses at rear ...	11	February, 1905
Vann's Buildings, Cooksey Road	10	February, 1905
40 Dudley Street	1	February, 1905
3 back 50, Dudley Street	1	February, 1905
House in 2 Court, Worcester Street	1	February, 1905
351 to 357, Summer Lane, and 39 to 42, William Street North and houses at rear	16	March, 1905
18 and 19, Lupin Street, and 5 Court... ...	6	March, 1905
Rear of 20, Lupin Street	4	March, 1905
Rear of 22, Lupin Street	2	March, 1905
Chapel Terrace, Saltley Road	13	March, 1905
30 to 33, Clivcland Street, and 5 Court ...	9	March, 1905
Rear of 107, Hill Street	10	March, 1905
Rear of 99, Hill Street	5	March, 1905
1 and 2 in 38 Court, Grosvenor Street West ...	2	March, 1905
3 and 4 in 40 Court, Grosvenor Street West ...	2	March, 1905
6 in 42 Court, Grosvenor Street West ...	1	March, 1905
12 Court, Heath Mill Lane	7	March, 1905
37 Weaman Street, and Court at rear ...	5	March, 1905
16 Court, Milk Street	12	March, 1905
9 Court, Cheapside	9	March, 1905
10 Court, Cheapside	9	March, 1905
5, 6, and 7 Courts, Trent Street	26	April, 1905
13, 14, and 15, Allison Street, and 2 and 3 Courts	22	April, 1905
10 to 14, Richard Street, and 2 Court ...	10	April, 1905
4 Court, Brass Street	3	April, 1905
7 to 14, Tennant Street, and houses at rear ...	12	April, 1905
Chapel Terrace, Warwick Street	12	May, 1905
28 Court, High Street, Bordesley	4	May, 1905
29 Court, High Street, Bordesley	11	May, 1905
17 Court, Bordesley Street	9	May, 1905
102 and 103, Bagot Street, and 6 Court ...	11	May, 1905

Houses represented as unfit for habitation (*continued*).

HOUSES REPRESENTED—*continued.*

Property.	No. of Houses.	Date.
5 to 9, Cliveland Street	5	May, 1905
1 to 10, rear 250 Bordesley Green	10	May, 1905
New Vale Court, Park Street	10	May, 1905
25, 26, William Street and 6 Court	9	May, 1905
1 Court, Moland Street	8	May, 1905
47, 48, Weaman Street, and houses at rear ...	10	June, 1905
14 Court, Weaman Street	9	June, 1905
75, 76, Weaman Street, and 21 Court... ...	7	June, 1905
5 Court, Nova Scotia Street...	7	June, 1905
91 to 95, Warwick Street, and 12 Court ...	19	June, 1905
30, 31, William Street, and 8 Court	11	June, 1905
7 Court, Fazeley Street	8	June, 1905
Rear of 32, Horse Fair	6	July, 1905
30, 31, Thorp Street, and houses at rear ...	4	July, 1905
8 to 11, Park Lane, and houses at rear ...	7	July, 1905
62 to 65, Allison Street, and houses at rear ..	8	July, 1905
7 and 8 Courts, Curzon Street	6	July, 1905
Rear of 68, Snow Hill	8	July, 1905
30 to 33, Ward Street, and houses at rear ...	8	July, 1905
Rear of 63, Nelson Street	5	July, 1905
130 to 133, Livery Street	4	September, 1905
88, 89, 90, Lancaster Street, and houses at rear	6	September, 1905
20 Court, Lancaster Street	4	September, 1905
Fox Court, Buck Street	2	September, 1905
7, 8, and 9, Fox Street, and 2 Court	8	September, 1905
97, 98, Holt Street, and 16 Court	5	September, 1905
74 and 75, Duke Street	2	September, 1905
14 Court, Aston Road	7	September, 1905
39 to 71, Mill Street	17	September, 1905
1 to 8, Fawdry Street, and houses at rear ...	10	September, 1905
19 to 22, Belmont Passage, Lawley Street ...	4	September, 1905
72, Duddeston Mill Road, and 7 Court ...	6	September, 1905
44 and 46, Fazeley Street	2	September, 1905
Houses rear 137 and 139, Fazeley Street ...	2	September, 1905
39, Palmer Street, and 10 Court	4	September, 1905
13 to 17 Rea Street	5	September, 1905
Rear of 100, Digbeth	5	September, 1905
81 and 82, Bromsgrove Street	2	September, 1905
4 and 5, Ladywell Passage	2	September, 1905
31, 32, Ladywell Passage, and houses at rear ...	3	September, 1905
Houses rear of 110, Dale End	10	September, 1905
26 to 29, Essington Street, and 5 and 6 Courts	20	September, 1905
11 Court, Dartmouth Street...	8	October, 1905
12 to 16, Legge Street, and 3 Court	23	October, 1905
11 Legge Street, and 2 Court	3	October, 1905
74 to 76, Bordesley Street, and 16 Court ..	13	November, 1905
7 to 10, Clyde Street	4	November, 1905
1 Court, High Street, Deritend	4	November, 1905
19 to 22, Glover Street	14	November, 1905
10 Court, Barn Street	7	November, 1905
249 to 252, Aston Road, and 24 Court ...	10	November, 1905
	793	

Houses closed by Closing Order.

In the next list will be found the situation of those houses which were closed by order of the Magistrates during 1905. Of these there were 327, as compared with 223 in 1904, and 65 in 1903. The amount of work entailed in presenting these 327 houses to the Magistrates was very

considerable, as in each case a most careful description of the property had to be obtained, and its unhealthy conditions noted. It is satisfactory to record that in the vast majority of instances the owners have recognised the necessity for having the houses thoroughly repaired, and have acquiesced in these closing orders. In one instance where the owner resisted the closing order and actually brought evidence to try and prove that the houses were in a habitable condition, the Magistrates who heard the case ordered certain work to be done. In this instance the absolutely essential work is alleged to have cost more than the requirements of the Housing Committee would have done had they been carried out in the first place; most certainly the work is not of as permanent a nature nor is the value to the owner as good.

Houses closed by Closing Order (*continued*).

Closing Orders.

Property.	No. of Houses.	Date.
3 to 8, and 2 Court, Bow Street	9	13th January, 1905
24 Bullock Street	1	13th January, 1905
23, 24, 25 Gibb Street...	3	27th January, 1905
95 to 99, and 23 Court, Park Street	15	24th March, 1905
27 Court, Lower Tower Street	3	24th March, 1905
House in 2 Court, Worcester Street	1	7th April, 1905
22, 24, and 26 Courts, Barford Street ...	24	7th April, 1905
1 Holt Street, and Houses at rear	3	7th April, 1905
3, 4, 5 Lister Street, and 1 Court	6	7th April, 1905
5 Court, Warstone Lane	11	7th April, 1905
13 and 14 Ivy Lane	2	7th April, 1905
209 to 214 Francis Street, and 25, 26 and 27 Courts	22	5th May, 1905
1, 2, 4, and 6 Manchester Street	4	5th May, 1905
2 Court, Ruston Street	4	5th May, 1905
11, 12, 13 Manchester Street, and 1 Court ...	8	5th May, 1905
12, 13 Glover Street, and House at rear ...	3	5th May, 1905
1 to 6 Tower Street, and 1 and 2 Courts ...	17	5th May, 1905
32, 35 Bagot Street, and 3 and 4 Courts ..	21	5th May, 1905
10 to 14 Richard Street, and 2 Court ...	10	5th May, 1905
4 Court, Brass Street	3	5th May, 1005
2 to 6 Henns Walk, and Houses at rear ..	7	19th May, 1905
Rear of 37 Brearley Street	3	2nd June, 1905
57 Court, Farm Street	3	2nd June, 1905
43, 44 Price Street, and 9 Court	11	2nd June, 1905
7 to 10 Tennant Street, and Houses at rear ..	6	2nd June, 1905
23, 24 Rea Street South, and 3 Court ...	10	31st June, 1905
7 to 12 William Street North, and 2, 3, 4 and 5 Courts	24	14th July, 1905
4 Court, Blews Street	2	11th August, 1905
30 to 33 Cleveland Street and Court 5 ...	5	20th October, 1905
Rear of 250 Bordesley Green...	10	20th October, 1905
39 Clarkson Street, and 9 Court	7	20th October, 1905
28 Court, High Street, Bordesley	4	20th October, 1905
55, 56 Ormond Street, and 16 Court ...	4	3rd November, 1905
37, 39 Brearley Street, and 15 Court ...	8	3rd November, 1905
23, 24 Garbett Street, and Houses at rear ...	11	17th November, 1905

CLOSING ORDERS—*continued.*

Property.	No. of Houses.	Date.
22, 43 Bow Street, Bank Terrace, and 4 and 6 Courts	16	1st December, 1905
Back 60 High Street, Bordesley	7	1st December, 1905
5 to 9 Cleveland Street	5	15th December, 1905
62, 63 Allison Street, and Houses at rear ...	4	15th December, 1905
Rear of 20 Lupin Street	4	15th December, 1905
42 Brearley Street, and Houses at rear ...	6	15th December, 1905
	327	

Demolition notices.

Sixty-one notices were served to demolish houses, as compared with 36 in the previous year. They were for the following properties :—

DEMOLITION NOTICES.

Property.	No. of Houses.	Date.
22 Court Hospital Street	6	7th April, 1905
Rear of No. 2 George Street, Parade ...	4	7th April, 1905
5 Court Dartmouth Street	7	16th June, 1905
28 to 36 Adams Street and houses at rear...	11	16th June, 1905
23, 24, 25, Gibb Street	3	16th June, 1905
1 Court Newdegate Street	6	29th July, 1905
6 Court and rear of 80, Aston Road and 6 to 12, Mill Street and houses at rear ...	24	11th November, 1905
	61	

Houses demolished.

During the year 230 houses were demolished under the Housing of the Working Classes Act, as compared with 127 in the previous year.

DEMOLISHED.

Property.	No. of Houses.	Date.
Rear of 53 Regent Place	2	4th January, 1905
54 and 56 Adams Street	2	4th January, 1905
1 in 1 Court, Coventry Street	1	1st February, 1905
4 Court, Brearley Street	7	1st February, 1905
24 Bullock Street	1	8th March, 1905
5 Court, Ellis Street	1	3rd May, 1905
Park Lane	9	3rd May, 1905
35 and houses at rear Holt Street	4	3rd May, 1905
15 Court, Aston Street	4	3rd May, 1905
2 Court, Bow Street	9	3rd May, 1905
21 Court, Moor Street...	12	3rd May, 1905
15 and 18 Glover Street	2	3rd May, 1905
8 and 9 Brass Street	2	3rd May, 1905

DEMOLISHED—*continued.*

Property.	No. of Houses.	Date.
13 Court, Hospital Street	3	3rd May, 1905
29 and 3 at back Clarkson Street	2	3rd May, 1905
298 Bellbarn Road	1	3rd May, 1905
106 William Street	1	3rd May, 1905
4 Court, Allison Street	13	3rd May, 1905
Rear 100 Digbeth	2	3rd May, 1905
18 Court, Rea Street	5	7th June, 1905
27 Court, Lower Tower Street	3	7th June, 1905
47 to 51 and houses at rear Suffolk Street ...	13	5th July, 1905
18 Court, Pritchett Street	9	5th July, 1905
1 Court, Tower Street..	13	5th July, 1905
28 to 40 Clarkson Street and houses at rear	12	27th September, 1905
7 to 10 Tennant Street and houses at rear ...	6	27th September, 1905
5, 7, and 9 Courts, Newhall Street	10	27th September, 1905
72 to 84 Dartmouth Street	7	27th September, 1905
5 to 8 Canal Street and houses at rear ...	8	27th September, 1905
15 Court, Holt Street	4	27th September, 1905
Rear of 1 Holt Street	3	27th September, 1905
Rear of 37 Weaman Street	1	27th September, 1905
Rear of 40 Dudley Street	1	27th September, 1905
Rear of 129 Glover Street	4	25th October, 1905
16, 18 and 20 Courts, Barford Street ...	7	25th October, 1905
174 Hospital Street	1	25th October, 1905
47, 48, and houses at rear Kenyon Street ...	4	29th November, 1905
1 Court, Clyde Street	2	29th November, 1905
22 Court, Hospital Street	10	29th November, 1905
1, 2, 4, and 6 Manchester Street	4	29th November, 1905
23, 24, 25 Gibb Street...	3	6th December, 1905
9 Court, Price Street	9	6th December, 1905
90 to 94 Park Street and 22 Court	13	6th December, 1905
	230	

Houses made fit for habitation.

The following list shows the situation of the houses which have been rendered habitable during the year. Of these there were 330, as against 242 which were repaired and completed in 1904.

RENDERED HABITABLE.

Property.	No. of Houses.	Date.
House adjoining 4 in 21 Court Hampton Street	1	4th January, 1905
20 Court New Summer Street	18	4th January, 1905
18 Court Cheapside	2	1st February, 1905
25 to 29 Allison Street, and 1 Court Coventry Street	12	1st February, 1905
47 to 55 Dartmouth Street	4	1st February, 1905
22 Court Great Russell Street	2	2nd February, 1905
Rear 158 Tennant Street	4	8th March, 1905
Corner Blews Street and Pritchett Street...	6	8th March, 1905

RENDERED HABITABLE—*continued.*

Property.	No. of Houses.	Date.
58, 59 New John Street	2	8th March, 1905
25 Court William Street	7	5th April, 1905
4 Court Landor Street	14	3rd May, 1905
4 and 5 Courts Glover Street	13	3rd May, 1905
5 court Ellis Street	2	3rd May, 1905
299 Bellbarn Road	1	3rd May, 1905
7 Court Clarkson Street	10	7th June, 1905
22, 23 Blews Street, and house at rear ...	3	7th June, 1905
9 and 1 at rear Canal Street	2	7th June, 1905
1 Court Little Edward Street	2	5th July, 1905
13 Court Hospital Street	12	5th July, 1905
Rear 22 Lupin Street	2	5th July, 1905
7 Court Allison Street	14	5th July, 1905
1, 2, and 3 Courts Brass Street	20	27th September, 1905
33 Court New Town Row	8	27th September, 1905
2 and 4 Courts Tower Street	8	27th September, 1905
36 Court High Street, Deritend	11	27th September, 1905
72 to 77 New Canal Street, and houses at rear	14	27th September, 1905
6 Court Tennant Street	10	27th September, 1905
Rear of 84 Edward Street	19	27th September, 1905
5 court Barford Street	8	27th September, 1905
2 Court Alcock Street	19	27th September, 1905
38 and 42 Courts Grosvenor Street West ...	3	27th September, 1905
11 Court Sheep Street	4	27th September, 1905
28 Court Hospital Street	19	25th October, 1905
23 Court Hampton Street	9	25th October, 1905
11 Court Glover Street	18	29th November, 1905
40 Court Grosvenor Street West	2	29th November, 1905
15 Court Hospital Street	15	29th November, 1905
Vann's Buildings, Cooksey Road	10	6th December, 1905
	330	

The number of courts in which one of the houses fronting the street has been taken down during the year as an obstructive building is 15.

Summary of work done by Housing Department.

The following tabular report is taken from the report of the Inspector of the Housing Department in regard to the work done by the Department since its inauguration up to December 31st, 1905.

Houses represented as unfit for habitation, under the Housing of Working Classes Acts . . 2,707

Of these there were

(*a*)	Rendered habitable	810
(*b*)	Converted into workshops	21
(*c*)	Demolished	416
(*d*)	Undergoing repair	232
(*e*)	Pending lapse of notices	1,228
(*f*)	Closing orders obtained at Police Court ...	712
(*g*)	Courtyards opened to street	40
(*h*)	Houses demolished (not represented) ...	21
(*i*)	Houses repaired (not represented)	258

The work of repairing existing slum dwellings has been well done, and it certainly has the effect of retaining in the central districts of the city cheap houses until better conditions can be obtained in the suburban areas. It has been alleged that the work which has been required of property owners has caused them to increase the rents of the houses to a very large extent. We have, in the Health Department, a record of the rent of 243 houses represented and dealt with more than a year ago, and I have ascertained the present rentals of these houses. They have been reduced in number by opening out courts, etc., to 226. The average rental of the 243 old houses was 3s. $8\frac{1}{5}$d. per house per week, while the average rental of the 226 existing houses more than a year after they had been repaired was 4s. $3\frac{1}{4}$d. In a few instances among the 243 houses the rentals were for houses sub-let in lodgings, and, therefore, included a rental of furniture as well as the house. In the renovated houses a few of them were greatly enhanced in value by being converted into shops, so that putting one condition against the other it may be said that the average increase is approximately 7d. per week, which represents about £1 10s. 0d. a year. Each house will cost about £50 to repair, which at 6 per cent. interest represents £3 a year, so that the tenant is paying interest on half the cost of the repairs

COMMON LODGING HOUSES.

Common lodging houses.

It was pointed out in the report for 1904 that the clauses in the Birmingham Corporation Act of 1903 in regard to common lodging houses would come into operation on the 1st of January, 1905. On this account an inspection was made of all the common lodging houses during 1904, and certain suggestions were made in regard to their registration. A considerable number of them were found to be quite unsuitable for the purpose, and registration was definitely refused unless the houses were made reasonably sanitary. In other cases a considerable amount of work was required to be done before they were entered on the annual register now required to be kept. With few exceptions the whole of the work was completed before the 1st January, and 35 common lodging houses, having sleeping accommodation for 1,972 persons, were placed on the register. Later in the year another house was registered, so that at the end of the year there were 36 common lodging houses in the City having accommodation for 2,012 lodgers.

Of these 2,012 beds 45 are provided for women only, 24 are provided for married couples, and the remainder for

Common lodging houses (*continued*).

men only. In each of the common lodging houses there is now reasonable ventilation in the sleeping rooms, proper sanitary accommodation in the way of closets, and fixed wash basins, with a supply of water laid on and towels placed ready for use, so that a man entering a common lodging house gets a wholesome room to sleep in, with bedclothing changed once a week, and proper sanitary arrangements and facilities for keeping himself and his clothing clean. Of the 2,012 beds, 1,514 are provided at 4d., 283 at 4½d., 46 at 5d., and 169 at 6d. The establishment of a Rowton House in Birmingham on the most approved and satisfactory lines has relieved the common lodging houses very greatly.

On account of the disastrous fire at a common lodging house in Glasgow, the Health Committee asked the Fire Brigade Superintendent to report upon the condition of the lodging houses in the City, and on his recommendation certain requirements were made in regard to many of them with a view to securing safety in case of fire. In a large number of instances the work suggested has been carried out, and while this report is being drafted another request has been made by the Health Committee to the Superintendent, asking him to see whether what has been done by the keepers reasonably protects the lives of the inmates in case of fire.

Twelve cases of Smallpox were ascertained to exist in common lodging houses, and in addition to these, a considerable number of doubtful cases were reported by lodging house keepers and others, and medically examined. In the case of one or two of the Smallpox patients, it is somewhat remarkable that the disease did not spread, as the patients resided in large lodging houses and exposed themselves freely. In this connection it has been found on previous occasions that a great many of the occupants of common lodging houses are efficiently protected by revaccination, either in tramp wards at the workhouse, in the Army or Navy, or in prisons. It is certain that the work done in this respect among our vagrant population by these authorities has been the greatest possible safeguard to large communities like Birmingham, otherwise the disease would have spread much more rapidly than it has done.

Eight lodging house keepers were summoned for committing offences under the Act or Byelaws, and in six cases fines amounting, in the aggregate, to £11 were imposed, with £2 15s. 6d. costs. The other two cases were withdrawn.

The following statement shows some of the work done in connection with common lodging houses. Common lodging houses (*continued*).

Visits paid by day	5,041
Visits paid by night	455
Windows not thrown open	56
Floors requiring cleansing	98
Bed clothes requiring cleansing...	134
Bed clothes to be provided	138
Houses limewashed	90
Means of ventilation provided	175
Repairs to floors, ceilings, roofs, and windows ...	609
Additional kitchens provided	12
Sinks provided or repaired	18
Fixed wash basins provided	87
Water closets provided	29
Water closets repaired	30
Ash tubs provided	15
Drains repaired	15
Yards paved	11

HOUSES LET IN LODGINGS.

Much more important than common lodgings from a sanitary point of view are houses sublet in lodgings. The law enables us to require good sanitary provision in the common lodging houses, but the powers which are given to sanitary authorities for the inspection and regulation of houses sublet in lodgings are not nearly so definite and satisfactory. In view of the fact that these sublet houses are occupied by families it is somewhat difficult to see how the same degree of nightly inspection can be devoted to them as to the common lodging houses where, in the majority of instances, men alone reside. Houses let lodgings.

The sanitary authority have power in Birmingham practically to place any such houses on their register provided they are sublet in lodgings to the poorest classes. There were 247 houses on the register at the end of the year 1905, and these contained authorised accommodation for 1,335 people. The condition of many of the houses is unsatisfactory. A cottage with three, four, or five rooms is taken and furnished by a person who, in the eyes of the law, is recognised as the landlord. This landlord lets each of the rooms to a separate family, or he may let off to each family two or more rooms should they require extra accommodation. Our difficulty arises from the fact that these houses were not originally built so that each room could be occupied separately as a dwelling house. There is no water supply in the rooms and often an insufficient amount of ventilation when it is considered that they are occupied day and night. The passage leading to these rooms also is often very dark and ill ventilated, and without good regulations for its periodical cleansing. The sanitary accommodation is not separate, and as there is no water

Houses let in lodgings (*continued*).

supply inside the house, nor sink to take away the drainage, every difficulty is put in the way of the occupants keeping themselves and their rooms clean.

Eleven persons were summoned during the year in regard to offences under the regulations relating to houses let in lodgings, and fines amounting to £3 12s. 6d., with £2 14s. 6d. costs, were imposed.

The subjoined statement shows some of the work done during the year in connection with Houses let Lodgings:—

No. of visits paid	3574
Windows not found open	45
Bed clothes not turned down	6
Bed clothes not periodically cleansed	14
Rooms, passages, and stairs not swept ...	107
Houses not cleansed	17
Houses not periodically limewashed	12
Houses to be repaired	58
Rubbish to be removed from cellars	15
Cases of overcrowding	24
Not separating the sexes	20

CANAL BOATS.

Canal boats

The following is a reprint of the Annual Report of the work done under the Canal Boats Acts and Regulations during the year 1905. The subjoined report is a copy of that which is required to be sent annually to the Local Government Board:—

"Health Department,
"The Council House,
"Birmingham,
"9th January, 1906

"Gentlemen,

CANAL BOATS ACTS.

"In compliance with Section 3 of the Canal Boats Acts, 1884, I have to present to you the Annual Report of the work done under the Canal Boats Acts, 1877 and 1884, and the Local Government Board regulations made thereunder, for the year ending December 31st, 1905.

"Inspector W. L. Wilson has acted as Inspector under the above Acts.

"The duties of the office are being performed in conjunction with certain duties connected with attendance at school of canal boat children. The salary for the joint office is at the rate of £109 4s. per annum, with uniform.

"The number of boats inspected during the year was 925, registered to carry 2,979 adults, as compared with 1,182, boats registered to carry 4,022 adults in 1904.

Canal boats (*continued*).

The actual number carried in these boats were 1,407 men, 482 women, and 516 children; 2,405 persons in all—equal to 2,147 adults.

"Out of the total number of boats 866 were found to be in compliance with the Acts and Regulations.

"It was found necessary to serve notices on the owners of 59 boats; 48 of these notices related to one contravention only, 7 to two, and 4 to three contraventions.

"The total number of infringements found was 74, their nature and extent being as follows :—

	Brought forward from 1904 to be dealt with.	Infringements found.	Notices complied with.	Carried forward to be dealt with in 1906.
Want of registration ...	...	7	6	1
Certificate not produced ...	1	14	15	..
Not properly marked ...	2	15	15	2
Cases of overcrowding ...	1	10	11	...
Sexes not separated ...	...	8	8	...
Water receptacle not provided	...	10	10	...
Not in habitable condition ...	...	4	3	1
Dirty cabin	...	1	...	1
Painting required	...	4	1	3
Fly boat used as ordinary boat	...	1	1	...
Total	4	74	70	8

"It was not found necessary in a single instance to take legal proceedings. The eight infringements carried forward in the above table remain to be dealt with at the commencement of the year 1906.

"To further secure compliance with the Acts and Regulations as regard such infringements, it was found desirable to send letters to certain owners drawing attention to the requirements of notices unfulfilled. In the large majority of instances compliance was readily made.

"No case of infectious disease was notified on the canal boats during the year, and it was thus unnecessary to detain any boat for disinfection.

"The number of boats on the register on December 31st, 1905, was 383, compared with 379 at the end of last year. Sixteen boats were registered during 1905—none of the boats required re-registering owing to structural alterations—and 27 certificates of boats were cancelled.

"Your obedient Servant,

"J. DOIG McCRINDLE, M.B.,

"Assistant Medical Officer of Health."

Canal boats (*continued*).

For a considerable number of years it has been evident that the conditions of life of many young persons on Canal Boats were extremely unwholesome from certain points of view, and also that their education was being neglected, notwithstanding the apparently stringent regulations which exist. An investigation was commenced into the condition of some of the canal boat children by Dr. McCrindle, and his report, together with that of Mr. Broscomb, Inspector of Schools, will be found at the end of this report.

Since the report was received, recommendations have been passed by a number of authorities on information obtained by them on very similar lines. In most instances appeal is being made to the Local Government Board and to the Board of Education in regard to the condition of these children.

MILK SUPPLY.

Milk supply.

The milk supply of a large city may be looked upon from two separate and distinct points of view. One is the prevention of adulteration in any of its forms by milksellers residing inside and outside Birmingham, while the other is ensuring that the milk is free from disease-giving properties.

Adulteration of milk.

1. Prevention of Adulteration.

The Acts of Parliament in regard to adulteration are administered by the staff of the Health Department, who for this purpose have collected during the year 760 samples of milk from dairymen and milk vendors in the City and from milk churns at the railway stations and elsewhere. The various procedures which have been adopted to ensure that actual adulteration does not take place have been detailed in the report of the City Analyst.

Two varieties of fraud may be mentioned as requiring special attention. One is the addition of separated milk to ordinary milk, by which considerable profit is made, and the other is the impoverishment in any way and the addition to the impoverished milk of colouring matter so as to make it look good and rich. On several occasions during the year it has come to the knowledge of the Health Department, that residents in some of the best districts in Birmingham have actually preferred this impoverished coloured milk to good uncoloured milk. In several of these instances, however, the vendor of the poor quality coloured milk has lost his trade when it has become generally known that he has been guilty of this deception.

Contamination of milk.

2. Protection of the milk from disease-producing qualities.

This is infinitely more important than the adulteration of milk with water or the abstraction of cream, and much

more attention requires to be given to this aspect of the milk supply. At the present time our methods of dealing with it are extremely limited, but it is hoped that within comparatively few years much progress will be made. Contamination of milk (*continued*).

The Veterinary Inspector visits the cowsheds in Birmingham every month, and examines each cow in every one of the cowsheds with a view to determining whether the animal is in such a state of health as to produce milk reasonably free from disease-giving qualities. This is perhaps the most valuable work which is being done, and if similar systematic and regular inspection were made of all the cows which supply the milk to Birmingham from outside districts we should have very much less tuberculosis due to milk and many less complaints of other illness due directly or indirectly to milk.

Unfortunately only a small part of the milk supply of Birmingham is derived from these cowsheds inside the City, so that the greatest part of our supply comes from outside districts where there is no veterinary supervision whatever, and from which we get milk which is dirty and disease-producing. In this respect, probably the safest method for any milk consumer in Birmingham is to buy milk which has been produced inside the City. This ensures getting it fresh from cows which are regularly inspected and kept in moderately well constructed cowsheds. The supply, however, unfortunately for Birmingham is extremely small, and one of two methods will have to be adopted in dealing with the outside supply:—(*a*) The authority of the district in which the milk is consumed will have to get power to inspect the outside cowsheds from which the milk is imported; or (*b*) a satisfactory guarantee will have to be given that such cowsheds are properly inspected by the authority of the district in which they are situated.

Mr. Malcolm's report on his visits to cowsheds is appended:— Inspection of cows and cowsheds.

> "*Register.*—On the 31st December, 1905, there were 25 licensed cowkeepers in the city, in whose names 64 cowsheds were registered to contain 598 cows. The registered list of these in detail is appended. This list shows a slight decrease in number as compared with that of the preceding year, when there were 26 cowkeepers with 65 sheds registered for 629 cows. During the year the changes in the register were as follows:—Three sheds were removed from the list, three were transferred and re-registered in new names, and two new sheds have been added. In each case both the re-registered and the newly registered sheds complied with the conditions of the City bye-laws.

Inspection of cows and cowsheds (*continued*)

"*Visits of Inspection.*—During the year the Veterinary Inspectors have made 713 visits to cows and cowsheds, each shed visited being reckoned one visit. The periodic method of inspection adopted in previous years was again followed and the cows and sheds were accordingly, as a rule, inspected once a month.

"*Cows.*—At each visit the cows were carefully examined, particular attention being given to the condition of the udders and the state of the milk. As a result of these inspections 107 cows were placed under special examination. Of these, 30 were passed, as their milk was found to be normal. Of the remainder, 30 were affected with a vesicular eruptive condition of the teats and udder, all of these, however, ended in recovery; 43 suffered from mastitis in one or more quarters of the udder, a number of these terminated in recovery but the majority lost the lacteal secreting function of the affected quarter; one was affected with milk fever but recovered; and three were old emaciated cows suffering from chronic induration of the udder, and as their recovery was hopeless they were removed from the sheds and destroyed. In one of the three cases tuberculosis was at first suspected, but bacteriological examination of the milk gave negative results and this was confirmed by post mortem examination. In no case was tuberculosis of the udder actually detected. More than usual interest is attached to the recorded outbreak of cutaneous vesicular eruption on the teats and mammary glands in that at its origin, and for some time, there existed, coincidently, in the same district, an outbreak of sore throat among the inhabitants, many of whom received their milk supply from the dairy chiefly affected. Furthermore, the actual existence of the condition was first observed at a special inspection undertaken at the request of the Medical Officer of Health, who, in investigating the outbreak of sore throat, found that a considerable number of those affected were customers of this particular dairy. The affected cows were at once removed into a separate building, received separate attendance and, as far as possible, were completely isolated from the healthy, and the sale of their milk was prohibited. All subsequent cases were similarly dealt with. The affection ran a short benign course and, except in one or two cases in which the milkers' hands aggravated the condition and converted the vesicles on the teats into more or less extensive sores, recovery was established in eight to ten days. Although the majority of cases occurred in the dairy referred to, several cases were observed in two other dairies in distant parts of the city and they were similarly handled. In connection with these, however, no report of sore throat among the customers was received; and, even in connection with the first dairy, it was soon found that the distribution of its milk and the occurrence of sore throats were not co-extensive. Moreover, neither did the extent of

Inspection of cows and cowsheds (*continued*).

their existence nor the period of termination of the two affections coincide. Nevertheless, although at no time was there any actual proof of a causal connection between the udder eruption in cows and the outbreak of sore throat among the people, their co-existence for a time, together with the manner of detection of the bovine malady, is highly interesting and particularly so on account of the past controversial history in connection with the two affections. The 44 cases of mastitis or inflammation of the udder recorded show an increase of 11 as compared with the preceding year. The cases, as in previous years, varied to a considerable degree in intensity. They begin, as a rule, as a simple catarrhal inflammation and a fair proportion of cases do not go further but under appropriate care recover. In this stage the milder cases may easily, for a time, be overlooked, and in several instances the attendants seemed unaware of the actual condition until it was pointed out by the Inspector. In a considerable number of cases, however, the inflammatory process is more intense and frequently assumes a suppurative character and then no attendant can overlook it. The majority of these suppurative cases end in suppression of the lacteal secretion of the affected quarters and in one case gangrene of the udder supervened. In every case at any stage as soon as detected the sale of milk is prohibited. As mastitis is frequently transmitted from cow to cow the dairymen are regularly warned of this liability and advised as to preventive measures.

"*Cowsheds.*—As a whole the cowsheds have been kept in fairly good sanitary condition and the bi-daily cleansing and periodic limewashing of their interior, as provided for in the bye-laws, have been carried out, but both in respect to the individual cleanness of the cows and the general cleanness of the sheds there is room for improvement, and it has been necessary in several instances to insist upon greater attention being paid thereto. Undoubtedly the difficulty in securing adequate cleanliness is contributed to by the dairymen restricting the supply of bedding in the attempt to minimise expense. It has been necessary in connection with some of the sheds to request various structural repairs, such as the relaying of defective gutters and floors and the renewing of ventilators, etc., and these required repairs have been effected."

No samples of milk have been taken during the year for bacteriological examination, but arrangements are being made with the University whereby not only samples of milk will be taken for examination for tubercle bacilli, but also for other disease-producing organisms and filth. It is hoped that after such investigations have been continued for a time it may be possible to get sufficient evidence to base further action on.

Inspection of milkshops.

As regards the handling of milk in the City, one inspector devotes the whole of his time to examining the milkshops and milk vendors' premises in the City, and to ensuring that the milk vessels are as far as practicable kept in a cleanly and sanitary condition.

A great deal of work has been done by this Inspector in this direction, and a general outline of his work may be gathered from the following tabular statement :—

	1903	1904	1905
Dairies on the register	26	16	15
Milkshops on the register ...	2734	2470	2327
Purveyors on the register	163	182	250
Dairies registered during the year ...	5	1	0
Milkshops registered	347	225	396
Purveyors registered	44	94	89
Dairy certificates cancelled	3	11	1
Milkshops ,, ...	675	489	539
Purveyors ,, ...	11	75	21
Visits to dairies	105	90	63
Visits to milk shops and milk stores ...	5201	5050	4327
Dirty vessels found at milk shops and milk stores	36	49	20
Shops, cellars, and pantries whitewashed	59	109	92
Lamp oil, fish, tripe and vinegar businesses prohibited	29	25	20
Dirty churns found at railway stations	7	0	1
Cases of infectious disease reported at milkshops	40	20	24

Milk supply and outbreaks of disease.

Several investigations were made during the year as to the connection between milk supplies and actual disease. So far as the spread of Tuberculosis is concerned it is extremely difficult at any time to say that a tubercular milk actually gave rise to tubercular disease in a child or young person. There is, however, ample indirect evidence on this point, so that action taken to prevent tubercular milk from coming into Birmingham will be most important.

No large outbreak of any other illness resulted from diseased milk. In one instance a good many cases of sore throat appeared to be connected with a vesicular eruption on the teats of cows in one cowshed. The milk of the cows in question was stopped being used for a time, and the cases of sore throat ceased.

MEAT, FISH, AND FRUIT SUPPLY.

Bad meat, fish and fruit.

The following list of articles surrendered or seized during the year has been supplied to me by the Superintendent of Markets, who controls the operation of the inspectors of meat and food, except when I am required to give special evidence with regard to particular seizures.

Bad meat, fish and fruit (*continued*)

BAD MEAT.	1903.	1904.	1905.
Voluntarily surrendered ...	2684 lots.	3104 lots.	3180 lots.
Seized by Inspectors	18 lots.	10 lots.	15 lots.
Weight destroyed	223 tons.	286 tons.	303 tons.
Persons prosecuted	6.	6.	2.
Penalties inflicted	£75.	£57.	£25.
BAD FISH			
Voluntarily surrendered ...	713 lots.	646 lots.	626 lots.
Seized	8 lots.	6 lots.	6 lots.
Weight destroyed	93 tons.	70 tons.	85 tons.
Persons prosecuted	2.	1.	3.
Penalties inflicted	£15.	£5.	£13.
BAD FRUIT.			
Weight destroyed	17 tons.	11 tons.	19 tons.
Persons prosecuted	1.	1.	0.
Penalties inflicted	£20.	£20.	—

The inspectors paid 11,005 visits to slaughterhouses, and report that they found them generally in a clean condition.

One point that has been brought to the notice of the inspectors and the Medical Officer of Health during the year, has been the increasing importation of foreign boxed meats, which come over in a condition which renders it quite impossible to ensure that the public are getting something which is free from disease-giving properties. In the case of the carcases that come over there is an opportunity for inspection and rejection of those in an unwholesome condition, but in the case of boxed goods it is practically impossible to make an inspection, and even if an inspection is made, to determine whether the small pieces of meat they contain or the small organs come from diseased animals or not. From this source there is a real danger which would be best met by forbidding the importation of such articles, as the prohibition certainly would not affect to any large extent the supply of cheap food for the people.

ICE CREAM.

Report on ice cream poisoning.

The epidemic of ice cream poisoning which occurred in Birmingham during the summer of 1905 was a typical example of many which have occurred in this country during recent years. Not only was it typical of the kind of poisoning which ice cream is liable to give rise to, but it was also typical of the poisoning which similar organic products when stored or manufactured under unwholesome conditions are liable to cause. Almost identical symptoms or results are produced when meats or other foods are handled under circumstances similar to those in the case referred to.

The outbreak was specially interesting from the fact that one bucketful of ice cream, out of a large number which

Report on ice cream poisoning (*continued*).

were manufactured under apparently the same conditions became contaminated, and produced all the mischief. This special bucket became contaminated with a Gaertner-like bacillus which was pathogenic, and which is known to have given rise to similar poisoning in many previous outbreaks.

The report which was made by the Medical Officer of Health to the Health Committee at the time is set out below, together with the reports from Professor Leith on his examination of the samples submitted to him.

"I beg to present the following preliminary report on the occurrence of 52 known cases of illness due to the eating of ice cream, which was alleged to have been sold by one vendor in Birmingham, on Saturday, July 15th.

"The cases of illness came to the knowledge of the police on the afternoon of that day between 4 and 8 p.m. In order to prevent further poisoning, the police-constable took possession of the remainder of the ice cream, and kept it at Kenyon Street Police Station in an iced condition until I took samples on Monday forenoon.

"From enquiries which were made by the police or by ourselves in the district where the ice cream was sold, we ascertained the existence of 52 cases of illness. Most of these were in children under 12 years of age. One was an adult 46 years of age, one was 20 years of age, one was 17, one 18, and all the others were under 14 years of age.

"Of the people who purchased the ice cream it is alleged that the first case of illness occurred as a result of eating ice cream purchased about 11.30 a.m., and that the last case was in a person who bought the ice cream about 8 p.m. The majority of the purchasers, however, state that they ate the ice cream between 12 noon and 3 p.m. The amount which was purchased by the persons who were made ill varied from a farthing's worth to three halfpenny-worth, most of the purchases being halfpenny-worths. In several cases where halfpenny-worths or penny-worths were purchased it was divided between two children, both of whom became ill.

"The interval between the purchasing of the ice cream and the onset of the illness varied from half an hour to eight and a half hours. The child who became ill within half an hour bought a farthing's-worth of ice cream at one o'clock, and became ill at 1.30. This child was 11 years of age.

"All the purchasers affected suffered from vomiting and pain in the stomach, and with the exception of five or six all suffered from diarrhœa and also collapse, while a good many of them had headache. Most of the sufferers were treated by the police, or at the hospitals, or by private medical practitioners, and except in two or three cases recovery was rapid.

Report on ice cream poisoning (*continued*).

"I took samples of the ice cream at the Police Station on Monday morning, as follows:—A set of samples were taken for bacteriological examination and submitted to Professor Leith; one sample was taken for chemical analysis and submitted to the City Analyst; a third sample has been stored for reference in the cold storage of the British Refrigeration Co., Limited, Digbeth; and a fourth sample was given to the owner for his use. The remainder of the ice cream was kept frozen for a couple of days in case it might be wanted for further use.

"The chemical analysis showed that none of the grosser irritant poisons, such as arsenic, antimony, etc., were present, nor was there any other metal. There was no preservative present, and only a very faint amount of colouring matter. I tasted the ice cream, and found that there was no unpleasant taste, nor was there any odour, so that neither the persons purchasing it nor the vendor could be aware of its poisonous character.

"Yesterday I received from Professor Leith a report on his bacteriological examination of the ice cream, of which the following is a copy:—

> "'I am now able to report that this ice cream contains a poison, and that in certain doses it is capable of causing inflammation and death in animals (guinea pigs). This poisonous property is due to the presence of a bacillus or bacilli (which I have not yet been able to fully isolate and identify) belonging to the colon group, a group of germs which indicate by their presence a fœcal or filth contamination.'

"I have interviewed the lad who sold the ice cream, and also his master. The lad's name is Enrico Tavolieri. He is 16 years of age, and is in the employment of Antonio Frezza, of 23, Bartholomew Street. He tells me that he left Frezza's house about 9.30 on Saturday morning, and commenced to sell at the corner of New Street and Ethel Street, where he remained over one of the street gullies for about half an hour. He then stood with his barrow over another street gully in Chamberlain Square, where he sold for some time, and afterwards went down the Parade, and stood between a street gully and a manhole at the end of Nelson Street. This would be about one o'clock. He then proceeded into Barker Street. Here he sold a good quantity, and he stayed opposite the coalyard until about twenty minutes to three. He then went to the corner of Barker Street and Garbett Street, and afterwards moved to the corner of Garbett Street and King Edward's Road. Here he again stayed over a street gully. This would be about ten minutes to four. He next took up a stand in the middle of the road at the junction of King Edward's Road and Alexandra Street, and afterwards stood over a gully by the park gate at the corner of

Report on ice cream poisoning (*continued*).

Anderton Street, where he sold the majority of the ice cream. He remained at the park gate until his stock was seized by the police.

"The lad has been selling ice cream for a considerable time, and is well known on the round taken. To make quite certain that he was the one who actually sold the poisonous ice cream, I asked sixteen of the older persons to identify him, and fifteen of them picked him out from amongst six other ice cream barrow men.

"The lad pointed out the various stands which he took up to one of the inspectors, and it will be noted that drain openings were quite near to a good many of them. I would not like to assert that these drain openings had anything to do with the production of the poisoning. In nearly all the cases they were trapped, and I do not think they were likely to have contaminated the ice cream, kept as it is in a closed vessel.

"The lad informs me that he took twelve shillings and sevenpence in money, which would represent (supposing each customer spent a halfpenny) 302 persons. Making allowance for those who purchased larger amounts, and also for those who purchased only farthings-worth, he agrees with me that there would be about 250 purchasers. He would also estimate this to be about the number from the amount of ice cream which he had sold that day. He took about five-and-a-half gallons of ice cream and sold about four gallons.

"We have made every endeavour to ascertain the actual number of persons suffering from the poisoning, and in addition to enquiries in the district, and at the hospitals, I wrote to a large number of medical men. It is possible, however, that a few cases may have escaped our observation, but I do not think the number can be very large. The important point about this part of the enquiry is that apparently four purchasers have escaped illness for every one attacked. In one or two cases we have corroborative evidence of this fact from people who actually purchased some of the ice cream and did not suffer any ill effects.

"The ice cream was sold in various ways. Most of the sales were in the form of sandwiches between two wafers. Others were in the form of what are called pies, the wafers being made into the shape of a cup. In other cases the ice cream was put into cups or glasses which were brought by the purchasers. This vendor says he did not take glasses or cups with him to sell the ice cream in.

"On Monday forenoon I called and saw Frezza at his premises in Bartholomew Street. He is one of the best known Italians in Birmingham, and has carried on a large business in ice cream vending and organ grinding for many years. From what I can ascertain, he has always been regarded as a respectable man. I first of all enquired of

him as to the materials from which his ice cream was manufactured, and he told me that he used chiefly milk, sugar, and cornflour. He buys his milk from the Birmingham Dairy Company, who supply him with over 400 gallons of whole cream milk per week. Of this amount he retails to other ice cream men about 200 gallons, so that he uses about 200 gallons ,of milk per week in making ice cream.

"In his yard at the point marked "A" on the plan there is a copper in which he brings to the boil about 17 gallons of this milk at a time. He then adds sugar, and when this is dissolved and the milk is again boiling he adds cornflour which has been previously made into a paste with some cold milk. The whole is then coloured a cream colour with certain colouring matter which I believe to be quite innocent. It is then allowed to come to the boil, and remains boiling for half-an-hour. Frezza tells me that occasionally his men will not carry out his instructions to boil it for 30 minutes, but that on all occasions it must be boiled, otherwise it would be possible to taste the unboiled cornflour. From his tasting of the poisonous ice cream he alleges that it must have been boiled for at least 20 minutes. This boiling would, I think, practically ensure that any harmful organisms which had got into the milk would be destroyed, except, perhaps, a few spore-bearing organisms. I believe, therefore, that any contamination which took place occurred after the boiling process.

" When the material is ready he takes a clean tin can, which he keeps for the purpose, and ladles it into buckets, each containing about $2\frac{1}{2}$ to 3 gallons. A strainer is put over each bucket so that any large particles are held back. The buckets are taken to a wooden shed, marked 'B' on the plan, and are placed on the floor. They are stirred at frequent intervals while the mixture is hot with a wire stirring apparatus, which at the time of my inspection was quite clean. The shed is used for nothing else but the cooling of milk and the storing of washed buckets. It is a flimsy structure with a brick floor. The roof is of galvanised iron, the boards of the front and ends are half-an-inch in thickness with plenty of ventilation, and the front wall of the shed has a door, and also a space at the bottom about 6 inches deep to allow of the water which is used for washing the floor being swept out.

" Frezza tells me there is very little trade doing during the early part of the week, and that he begins to make the ice cream on Thursday for the Friday, on Friday for Saturday, and Saturday for Sunday. In weather such as we have been having recently it would be somewhat difficult to cool this paste rapidly, and it would be specially difficult to cool it in a shed with a galvanised iron roof such as this has. It appears to me to be quite possible

Report on ice cream poisoning (*continued*).

that a bucketful of paste will stand in this shed for 12 or more hours, and will be subject to any contamination which happens to be in the yard.

"Right opposite this shed are three water-closets, marked w.c. on plan, which are used by the inhabitants of the courtyard. The Health Department have always had the greatest difficulty in getting the Italians to use any kind of sanitary convenience properly. At the time of my visit the floors and seats of the water-closets were saturated with excremental filth. On Friday, the 14th of July, the district inspector, who calls very frequently at this courtyard, found that it had not been swept up. He did not, however, notice that the conditions were worse than usual.

"On the Saturday when this poisoning took place, Frezza tells me that 15 men in his employ left with ice cream barrows, and that no complaint had been made in regard to 14 of them, so that if the contamination took place while the buckets of paste were allowed to stand to cool, it has apparently only affected one bucket. It seems to me to be most likely that excremental organisms have been blown into one of the buckets of ice cream while it was in a warm condition, and that rapid multiplication of the organisms has taken place without any obvious sign of the stuff going bad.

"Having cooled the buckets in the shed in question, they are taken early in the morning and emptied into the circular freezers, which are subsequently put into the barrows. From four to seven gallons are put into each freezer. At first the freezer is merely revolved by hand. As soon, however, as some of the ice cream has commenced to consolidate, a specially made spade is used, and the man works this spade for some hours, in order to freeze the whole mass. Frezza tells me that it takes a man about three hours to freeze the whole of it. As soon as it is frozen he starts off on his round.

"It seems to me probable, therefore, that the substance became contaminated while in the process of cooling, and that after it was frozen no material alteration took place, as the temperature at which it was kept would practically prevent the multiplication of micro organisms. The cold temperature, however, would not destroy the poison in any way.

"Speaking generally, the condition of the premises in which this ice cream was manufactured is not worse than that of many other premises where ice cream and other foods are stored or manufactured in Birmingham, so that I think there is a possibility of similar outbreaks occurring on other occasions, and that it would be prudent to at once take steps to deal with this matter in regard to the manufacture and storage of ice cream.

Report on ice cream poisoning (*continued*).

"Your Committee will remember that in the Birmingham Corporation Act, 1903, Section 98, powers were obtained to impose a penalty on the manufacturer of ice cream who manufactured or stored it (*a*) in a cellar or room with a drain opening, (*b*) who exposed the ice cream to infection or contamination, or who omitted to report any infectious disease amongst persons employed on his premises.

"In the sub-section relating to manufacturing or storing ice cream in such a way as not to expose it to infection or contamination I think we have power to require much more satisfactory measures than are at present taken.

"In drawing up the notice to ice cream vendors by order of your Committee some time ago I set out certain instructions. These instructions have been supplied to all manufacturers of ice cream, and I believe that if they are properly interpreted they will be sufficient to prevent such occurrences as the one in question.

"I would recommend that arrangements be made to have samples of ice cream bacteriologically examined with a view to seeing that they are clean. This examination would have to be done by a bacteriologist, and in order that the Health Committee might be able to take proceedings in any case where dirty samples of ice cream were being sold I think it advisable that enquiries should be made as to whether the bacteriologist who does the work should not be appointed a public analyst for the city. This is the procedure which is adopted at Liverpool. In these cases there seldom arises any question as to the chemical purity of the substance, and it is therefore only necessary to have it bacteriologically examined.

"In addition to making systematic examinations, I would suggest that the condition of each of the ice cream manufacturing premises in Birmingham be reported on, so that the Health Committee may be in possession of full information on the subject.

———

"The Bacteriological Laboratory,
"The University, Birmingham,
"July 24th, 1905.

"Dr. Robertson,
"Medical Officer of Health
"The Council House,
"Birmingham.

"Dear Sir,

"*Ice Cream Received on 17th inst.*

"I am now able to report that this ice cream contains a poison, and that in certain doses it is capable of causing inflammation and death in animals (guinea pigs). This

Report on ice cream poisoning (*continued*).

poisonous property is due to the presence of a bacillus (which I have not yet been able to fully isolate and identify) belonging to the colon group, a group of germs which indicate by their presence a fæcal or filth contamination.

"Yours faithfully,

(Signed) "R. F. C. LEITH."

"The University,
"Birmingham,
"January 5th, 1906.

"Dr. Robertson,
"Medical Officer of Health,
"The Council House.

"*Ice Cream.*

"Dear Sir,

"In my former reports of 18th and 27th July I pointed out that the investigations carried out up to those dates had shown that the ice cream contained a poison capable of producing inflammation, and that this poison was the product of one or more germs allied to the group known as the colon bacillus, indicating that the ice cream had become contaminated with filth in some way. My further investigations, which have extended over a long period of time, and involved a large number of experiments, have been undertaken with the object of detecting, as far as possible, all the germs present in the ice cream and identifying them. They were completed some little time ago, but I have delayed sending you my report in order that I might first consult the literature bearing upon the subject. I find, however, that I need not do more than refer to it generally, as, whatever interest and importance it has scientifically, it does not materially bear upon the practical results in the present case. I therefore confine myself chiefly to my own findings and the conclusions they lead to.

"The ice cream contained a large number of germs. This does not necessarily signify unhealthiness, and my earlier experiments aimed at detecting the dangerous and excluding the harmless ones. I was able, after a time, to exclude all but six (6) different groups or families of germs, and the isolation and testing of each of the latter took up by far the greatest part of the work of this whole investigation, involving as it did a very large number of experiments extending over some months. They resulted in showing that one family was chiefly, if not entirely, to blame, a family or variety of bacillus belonging to the Colon group. Great difficulty was met with in placing this bacillus in its proper place in this great group. It will be sufficient for our present purpose to say

that this great group contains three sub-groups called respectively (1) the Typhoid, (2) the Colon proper, and (3) the Gaertner. The bacillus in question seemed to be somewhere between (2) and (3), but it was finally shown to belong to (3), viz., the Gaertner sub-group. All the varieties of both (3) and some of those of (2) are capable of causing a similar kind of inflammation of the stomach and intestines, and some of the epidemics of food poisoning of various kinds. It has been shown that some were caused by (3) and some by (2). Generally speaking (3) is more dangerous than some by (2), and its epidemics have mostly been more severe than the present one now under discussion. Report on ice cream poisoning (*continued*).

"The other five families of germs found in the ice cream were ultimately found to be harmless, though for a time under suspicion, but they probably had some influence in increasing the harmful action of the chief actor—the Gaertner's bacillus. This bacillus when withdrawn from the others quickly lost its virulence.

"There are several varieties of the Gaertner sub-group, and the particular variety in the present case proved to be one of the least virulent of them. It is to this fortunate circumstance that the comparatively mild character of this epidemic is probably due.

"Yours faithfully,

"(Signed) R. F. C. LEITH."

WATER SUPPLY.

The analysis of water samples taken at the instigation of the Health Committee from taps in various districts of the City are set out in Table XIII. These samples are taken with a view to controlling the water supply purely from its health aspect. At the beginning of the year the City was partly supplied with Welsh water and partly from the old sources of supply. It was not until the latter part of the year that the Water Department were able to report that the whole supply was coming and would continue to come from Wales, except during periods of long continued drought in summer or during any special breakdown. Water Supply.

WELSH WATER.

The Welsh water supplied during the year has been of most excellent quality throughout. At times it has been more peaty in colour than at others, but on the whole the colour is less than it was, and will probably get less as time goes on. As was stated last year, the water, although peaty coloured, is not an acid moorland water like that supplied to so many of the large northern towns, but is faintly alkaline in reaction. Welsh water.

Welsh water (*continued*).

Careful observation has been kept by the Health Department and also by the Water Department of the action of the water upon iron or lead pipes, and it is found that under ordinary conditions none of the metal is taken in solution. As in the case of our old supply, and almost every other known drinking water, some slight action takes place when the water is allowed to stand in a new lead pipe overnight, but even under these conditions the amount of lead dissolved is small.

It came to the knowledge of the Health Department during the year that in order to prevent kettles rusting certain manufacturers had commenced to galvanise both the inside and the outside of kettles, and to call them Welsh water kettles. In certain cases the amount of zinc which was dissolved from water boiled in these kettles was very large indeed—as much as five to eight grains per gallon—causing the water to be quite turbid. The trade were communicated with, and very quickly the kettles in question were withdrawn from circulation as being quite unsuitable for use with Welsh water.

While investigating these galvanised iron kettles it was found that among the cheaper varieties of kettles a number of the iron ones were lined with a mixture of tin and lead instead of being coated with pure tin. Certain of these lead-lined kettles may give rise to illness from lead poisoning, although no such case has come to the knowledge of the Health Department. Fortunately most of these kettles, by reason of the bad materials which are used, soon wear out and it is probable that their use will be discontinued very speedily in the district.

FACTORIES AND WORKSHOPS.

Factories and workshops.

Three inspectors devote the whole of their time to that part of the inspection of factories and workshops which has been relegated by the Act of Parliament to the Health Department, one of those inspectors being a woman.

On account of the nature of the staple industries of Birmingham a considerable amount of difficulty is experienced in getting owners of the smaller workshops to keep them up to the standard of cleanliness to which it is desirable they should be kept, and it may even be some years yet before reasonable standards of cleanliness are generally recognised. As an instance of what is meant it is difficult to get tailors to wash the floors of their workshops or to whitewash the walls with that frequency which is necessary. Again, in a good many bakehouses and other places where food is prepared the same degree of cleanliness of floors, walls, and apparatus is not observed as is certainly desirable.

The work done by the three inspectors is set out in the accompanying tables, which are comparable with those issued during the preceding year. Factories and workshops (*continued*).

FACTORIES AND WORKSHOPS.—RETURN FOR 1905.

I.—INSPECTION.

	Inspections.	Written Notices.	Prosecutions
Factories	728	194	1
Workshops	7130	1447	2
Work places	293	36	—
Homeworkers' premises	596	10	—
Total	8747	1,687	3
Revisits paid ...	3381	—	—

II.—DEFECTS FOUND.

PARTICULARS.	Number of Defects.		Referred to H. M. I.	No. of Prosecutions.
	Found.	Remedied		
Nuisances under Public Health Acts :–				
Want of cleanliness	1786	1784	—	—
Want of ventilation	94	94	—	—
Overcrowding	11	11	—	—
Want of drainage of floors	14	14	—	—
Other nuisances	1173	1172	—	1
Sanitary accommodation — Insufficient	115	114	—	—
Sanitary accommodation — Unsuitable or defective	1321	1310	—	2
Sanitary accommodation — Not separate for sexes	64	64	—	—
Offences under the Factory and Workshops Act : —				
Illegal occupation of underground bakehouse	—	—	—	—
Breach of special Sanitary requirements for bakehouses	5	5	—	—
Failure as regards lists of outworkers...	36	19	—	4
Giving out work to be done in premises which are— Unwholesome	—	—	—	—
Giving out work to be done in premises which are— Infected ...	—	—	—	—
Allowing wearing apparel to be made in premises infected by Scarlet Fever or Small-pox	—	—	—	—
Other offences	—	—	—	—
Total	4619	4587	—	7

Factories and workshops (*continued*).

III.—OTHER MATTERS.

		Number.		
Matters notified to H.M. Inspectors of Factories—				
Failure to affix Abstract of the Factory and Workshop Act		90		
Action taken in matters referred by H.M. Inspectors as remediable under the Public Health Act, but not under the Factory and Workshop Act	Notified by H.M. Inspectors	127		
	Reports (of action taken) sent to H.M.I.	127		
Other		—		
Underground Bakehouses—				
Certificates granted during the year		—		
In use at the end of the year...		14		
Homework—		Number of		
Lists of Outworkers—		Lists.	Outworkers.	
Lists received		299	1939	
Addresses of Outworkers	forwarded to other Authorities ...	184		
	received from other Authorities ...	36		
Homework in unwholesome or infected premises:—		Wearing Apparel.	Other.	
Notices prohibiting homework in unwholesome premises		—	—	
Cases of infectious disease notified in homeworkers' premises		—	5	
Orders prohibiting homework in infected premises		—	—	
Workshops on the Register (s. 131) at the end of the year		8697		

BLACK SMOKE.

Smoke nuisances.

Four Inspectors devote the whole of their time to making observations, each of one hour's duration, on the chimneys in Birmingham. As in previous years these observations deal with chimneys from steam boilers, with chimneys from metallurgical furnaces, brewing coppers, and furnaces of other apparatus. The average duration of black smoke from each of the chimneys during the year was 1·95 minutes, as compared with 1·39 minutes in 1904.

The total number of observations made was rather fewer than in the previous year. The smaller number of observations was mainly due to illness among the staff, and the requirement of continuous observation of certain chimneys which occupied the time of certain of the officers.

The following table shows the number of observations made during each of the last eight years :—

	1898	1899	1900	1901	1902	1903	1904	1905
No. of Observations	6431	14100	9358	15808	13445	16705	13186	10034
Average number of minutes of black smoke per observation	3·42	1·36	1·95	1·34	1·26	1·27	1·39	1·95

In the next table are set out the number of cases dealt with by the Health Committee, on account of the excessive emissions of black smoke :—

	1898	1899	1900	1901	1902	1903	1904	1905
Total cases dealt with	152	117	125	116	139	151	231	250
Cautionary letters sent	99	81	89	80	89	71	117	128
Police Court proceedings	53	35	35	35	50	80	98	109
Total amount of fines ...	£40/2/0	£19/10/0	£24/10/0	£15/2/6	£33/15/0	£49/7/6	£77/10/0	£69/10/0
Total amount of costs ..	£21/10/0	£14/0/0	£14/6/0	£14/4/0	£19/8/6	£36/15/6	£37/17/6	£41/0/0
Average fine	15/1	11/2	14/0	8/7	13/6	13/2	15/10	16/2

The number of prosecutions during 1905 was larger than in any previous year. There is very much to be done in the way of limiting the production of black smoke in Birmingham. In nearly every instance where an excessive emission of black smoke is reported it is found that the owner of the factory has either not provided sufficient boiler accommodation, or that he takes comparatively little interest in his stokers with a view to his insisting on their firing regularly and in such manner as to limit the amount of black smoke as much as possible. With the provision of a proper amount of boiler accommodation and the exercise of reasonable care on the part of the fireman, nine-tenths or more of the black smoke emitted from our manufactories could be done away with. This is the experience of everybody who has taken up seriously the question of the abatement of smoke nuisances, and it is the lines along which manufacturers who have been public spirited enough to pay attention to the abatement of black smoke have been most successful. In ordinary works it appears to be nobody's duty to supervise the prevention of black smoke. It is probably also better not to make use of smoke preventing apparatus, the majority of which get out of working order and give rise to disappointment later.

APPENDIX.

TABLE I.—VITAL STATISTICS OF WHOLE DISTRICT DURING 1905 AND PREVIOUS YEARS.

Year.	Population estimated to middle of each year.	Births.		Deaths Under 1 Year of Age.		Total Deaths Registered At all Ages.		Total Deaths in Public Institutions in the District.	Deaths of Non-residents registered in the District.	Deaths of Residents registered beyond the District.	Nett Deaths at all Ages belonging to the District.	
		Number.	Rate.*	Number.	Rate per 1,000 Births registered.	Number.	Rate.*				Number.	Rate.*
1	2	3	4	5	6	7	8	9	10	11	12	13
1895	496,751	16,014	32·3	2,910	182	9,863	19·9	1,656	...	...	...	...
1896	501,241	†16,582	32·5	†3,265	197	†10,405	20·4	†1,554	...	...	...	...
1897	505,772	16,771	33·2	3,594	214	10,668	21·1	1,489	...	...	...	...
1898	510,343	17,289	34·0	3,287	190	9,936	19·5	1,518	...	...	...	...
1899	514,956	17,609	34·3	3,398	193	10,446	20·3	1,614	247	325	10,524	20·5
1900	519,610	16,941	32·7	3,366	199	10,756	20·8	1,911	267	393	10,882	21·0
1901	523,284	16,735	32·1	3,150	188	10,357	19·8	1,802	302	347	10,402	19·9
1902	528,181	†17,103	31·9	†2,681	157	†9,577	17·8	†2,082	†312	†407	†9,672	18·0
1903	533,039	16,866	31·7	2,668	158	9,056	17·0	1,916	321	388	9,123	17·2
1904	537,965	16,902	31·5	3,302	195	10,235	19 1	2,008	332	437	10,340	19·3
Averages for years 1895-1904	517,114	16,881	32·6	3,162	187	10,130	19·6	1,755	...	...	..	...
1905	542,959	15,795	29·2	2,451	155	8,588	15·9	1,838	362	492	8,718	16·1

* Rates in columns 4, 8, and 13 calculated per 1,000 of estimated population. † 53 weeks.

Area of District in acres, 12,639.

Total population at all ages at Census of 1901 522,204.
Number of inhabited houses " " 107,831.
Average number of persons per house at Census of 1901, 4·8.

TABLE II.—VITAL STATISTICS OF SEPARATE LOCALITIES IN 1905 AND PREVIOUS YEARS.

Year.	Population estimated to the middle of each year.	Deaths at all ages.	Death-rate per 1,000.	Population estimated to the middle of each year.	Deaths at all ages.	Death-rate per 1,000.	Population estimated to the middle of each year.	Deaths at all ages.	Death-rate per 1,000.	Population estimated to the middle of each year.	Deaths at all ages.	Death-rate per 1,000.	Population estimated to the middle of each year.	Deaths at all ages.	Death-rate per 1,000.
Wards	Rotton Park.			All Saints'.			Ladywood.			St. Paul's.			St. George's.			St. Stephen's.		
1899	41,673	758	18·2	40,009	705	17·6	25,140	496	19 8	17.118	376	22·0	20,641	490	23·8	23,533	624	26·6
1900	43,339	773	17·8	42,251	828	19·6	25,177	484	19·2	17,025	346	20 4	20,473	539	26·3	23,385	615	26·3
1901	46,835	752	16·1	41,444	725	17·5	25,089	502	20 0	14,954	338	22·6	20,230	469	23·2	23,765	633	26·6
1902	46,088	677	14·4	41,834	659	15 5	25,128	444	17·3	15,552	289	18·2	20,434	449	21·6	23,720	640	26 5
1903	46,887	650	13·9	42,101	662	15·7	25,253	448	17·8	15,561	299	19·2	20,412	425	20 8	23,768	499	21·0
1904	47,658	821	17·2	43.033	769	17·9	25,284	509	20·1	15,669	336	21·5	20,425	439	21·5	23,615	582	24·7
1905	48,530	680	14·0	42,232	618	14·6	24,842	413	16·6	15,543	244	15·7	20,350	383	18·8	23,284	465	20·0
Wards	St. Mary's.			St. Bartholomew's.			Market Hall.			St. Thomas'.			St. Martin's.			Edgbaston and Harborne.		
1899	15,536	476	30·7	26,947	732	27·2	11,030	207	18·8	18,682	428	22·9	23,941	503	21·0	30,313	418	13·8
1900	15,570	475	30·4	27,003	749	27·7	10,858	234	21·5	19,057	399	20·9	24.143	527	21·9	30,718	441	14·4
1901	15.904	472	29·7	26,857	696	25·9	9,807	171	17·4	19,215	402	20·9	23.950	485	20·3	30,795	402	13·1
1902	15,993	405	24·8	26,876	678	24·6	9,570	165	16 9	18,586	381	20·1	24 097	499	20·3	31,200	390	12·3
1903	16,248	375	23·1	26,572	647	24·4	9,483	154	16 3	18,559	347	18·7	24.019	404	16·8	31,311	380	12·1
1904	15,859	382	24·1	25,801	741	28·7	9,163	162	17·7	18.764	338	18·0	24,469	461	18·8	31,287	399	12·7
1905	15,551	325	20·9	24,762	571	23·1	9.049	154	17·0	18,563	315	17·0	24.662	395	16·0	31,002	345	11·1
Wards	Deritend.			Bordesley.			Duddeston.			Nechells.			Balsall Heath.			Saltley.		
1899	25,346	618	24·4	52,206	807	15·5	24,038	512	21·3	33,773	761	22·5	38,120	666	17·5	36,717	672	18·3
1900	24,771	645	26·0	53,770	851	15·8	24,274	569	23·4	33.701	739	21·9	38,579	619	16·0	40,829	681	16·7
1901	24,704	550	22·3	54.686	843	15·4	23,921	555	23·2	33,624	760	22·6	38,827	582	15·0	42,250	741	17·6
1902	24,516	507	20·3	55,606	761	13·4	23,773	517	21·3	33,384	636	18·7	39,025	589	14·8	44,185	679	15·1
1903	24,077	517	21·5	56,825	758	13·3	23,541	463	19 7	33,710	570	10·9	39,359	531	13·5	45,427	714	15·7
1904	24,157	532	22·0	55,596	843	15·2	23,451	538	22·9	33,346	765	22·9	40,140	595	14·8	46,761	784	16·8
1905	23,723	489	20·6	58,464	782	13·4	23.395	469	20·1	32.827	588	17·9	40.412	517	12·8	47,318	641	13 5

Note.—The inmates of large Institutions are not included in the Ward populations, and the deaths amongst them have been referred, as far as possible, to the Wards in which the deceased persons had previously resided.

TABLE III.

Cases of Infectious Disease Notified during the Year, 1905.

Classified according to ages, wards, and institutions.

DISEASE	AGES.													WARDS.																	Institutions.	City
	Under 1.	1 to 5.	5 to 10.	10 to 15.	15 to 20.	20 to 25.	25 to 35.	35 to 45	45 to 55.	55 to 65.	65 to 75.	75 to 85.	85 and up.	Rotton Park.	All Saints'.	Ladywood.	St. Paul's.	St. George's.	St. Stephen's.	St. Mary's.	St. Bartholomew's.	Market Hall.	St. Thomas'.	St. Martin's.	Edgbaston and Harborne.	Deritend.	Bordesley.	Duddeston.	Nechells.	Balsall Heath.	Saltley.		
Smallpox	..	..	1	4	2	3	6	8	8	4	..	..	..	..	..	..	..	2	..	..	4	..	..	10	..	5	4	..	..	..	10	1	36
Scarlet Fever .	22	563	703	225	56	51	47	12	4	1	..	..	..	164	162	74	31	93	93	51	76	17	40	44	70	49	177	98	110	95	191	49	1684
Diphtheria ..	15	156	191	82	78	50	61	16	8	2	1	..	..	111	17	42	18	33	29	16	27	21	11	21	27	23	59	57	53	38	34	23	660
Membranous Croup	2	28	6	..	..	..	1	1	..	..	..	..	..	..	1	..	1	1	6	2	6	1	..	3	..	1	3	2	4	1	6	..	38
Typhus Fever ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	.	..	..	..	..	..
Typhoid Fever ..	1	16	19	25	28	43	44	20	8	5	..	..	..	21	12	25	3	14	16	8	9	4	2	9	9	6	19	12	14	4	18	4	209
Continued Fever..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Relapsing Fever ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Puerperal Fever ..	..	..	..	..	1	9	20	10	..	..	..	..	..	4	1	4	..	..	2	2	2	..	..	1	3	3	2	7	4	1	3	1	40
Cholera	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Erysipelas ..	31	33	25	25	45	28	86	120	82	71	37	11	1	56	34	30	19	23	32	10	45	17	19	21	12	18	53	36	41	29	72	28	595
Totals	71	796	945	361	210	184	265	187	110	83	38	11	1	356	227	175	72	166	178	89	169	60	72	109	121	105	317	212	226	168	334	106	3262

TABLE IV.

Deaths Registered in or Belonging to the City of Birmingham during the Year ending December 30th, 1905.

DISEASES.	AGES.													All Ages.		
	0—	1—	5—	10—	15—	20—	25—	35—	45—	55—	65—	75—	85—	Males.	Females.	Persons.
Smallpox :																
(*a*) Vaccinated	..	..	..	..	..	..	..	..	1	..	..	..	..	..	1	1
(*b*) Unvaccinated	..	..	..	..	..	..	..	..	..	..	..	..	..	..	.	..
(*c*) No Statement	..	..	..	..	..	..	..	..	..	..	..	.	..	..	..	..
Measles	40	185	13	..	1	..	..	..	..	..	..	..	..	133	106	239
Scarlet Fever	2	32	12	2	2	2	1	..	..	..	.	..	..	26	27	53
Typhus Fever	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Epidemic Influenza	2	1	1	3	3	1	6	8	11	9	11	6	1	30	33	63
Whooping Cough	72	81	6	..	..	.	..	..	..	..	..	..	..	72	87	159
Diphtheria, Membranous Croup	9	49	28	5	..	..	5	2	..	..	..	..	..	40	58	98
Enteric Fever	1	2	1	3	8	6	7	8	1	1	..	..	..	29	9	38
Diarrhœa, Dysentery	196	40	2	..	..	..	1	2	..	1	8	6	1	128	129	257
Epidemic Enteritis	168	38	..	..	..	..	.	..	..	..	..	..	..	109	97	206
Epid. Cerebro Spinal Meningitis	1	..	..	..	..	1	..	..	..	..	..	..	..	1	1	2
Varicella	2	2	..	..	..	..	..	..	..	.	..	..	..	2	2	4
Mumps	..	..	..	..	..	..	1	..	..	..	..	..	..	..	1	1
German Measles	1	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1
Hydrophobia	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Glanders, Farcy	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Tetanus	.	..	..	..	..	..	..	..	1	..	..	..	..	1	..	1
Anthrax, Splenic Fever	..	..	..	..	..	..	.	..	..	..	..	..	..	..	..	..
Cowpox, Accidents of Vaccinat'n	1	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1
Syphilis	17	1	..	..	1	..	1	1	1	..	..	..	..	9	13	22
Gonorrhœa	..	..	..	..	..	..	..	1	1	..	..	1	..	3	..	3
Phagedæna	..	..	..	..	..	..	..	.	.	..	..	..	..	..	..	..
Erysipelas	5	1	..	..	2	1	2	2	6	8	4	..	..	13	18	31
Puerperal Fever	..	..	..	..	1	4	11	8	..	..	..	..	..	..	24	24
Pyæmia, Septicæmia	3	3	2	..	..	1	1	1	1	.	1	..	..	10	3	13
Infective Endocarditis	..	..	..	1	1	..	1	..	..	.	..	..	..	1	2	3
Cancrum Oris	..	4	..	..	..	..	..	..	..	..	..	..	..	1	3	4
Stomatitis	3	..	..	..	..	..	.	..	..	1	..	..	..	1	3	4
Carbuncle	..	1	..	..	..	..	..	1	1	.	.	..	..	1	2	3
Cellulitis	2	2	..	..	..	..	..	..	..	2	3	..	1	5	5	10
Other Septic Diseases	1	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1
Malarial Fever	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Rheumatic Fever	..	..	4	3	1	2	6	3	5	1	..	.	..	12	13	25
Rheumatism of Heart	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Tuberculosis of Brain	14	43	7	1	1	1	1	..	..	..	..	..	..	35	33	68
Tuberculosis of Larynx	.	..	..	..	..	..	1	1	2	..	..	..	..	3	1	4
Phthisis	6	14	5	9	46	69	174	99	47	56	33	1	..	509	250	759
Abdominal Tuberculosis	15	38	3	1	1	2	2	1	1	..	..	.	..	56	38	94
General Tuberculosis	8	12	4	2	3	3	6	5	7	2	1	1	..	25	29	54
Other forms of Tuberculosis	2	3	3	1	1	2	2	2	..	1	2	..	1	11	9	20
Thrush	..	1	..	..	..	..	..	..	..	..	..	..	..	..	1	1
Actinomycosis	..	.	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Hydatid Diseases	..	..	..	..	..	..	..	..	..	.	..	..	..	..	..	..
Scurvy	..	.	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Ptomaine Poisoning	..	..	.	..	..	1	..	..	..	..	..	..	..	..	1	1
Acute Alcoholism	..	..	..	.	..	..	..	1	1	1	..	..	..	1	2	3
Chronic Alcoholism	.	..	..	..	..	..	1	8	4	1	2	..	..	8	8	16
Lead Poisoning	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Brass Poisoning	..	..	..	..	..	..	..	..	..	..	..	..	..	.	..	..
Osteo-arthritis, Rheumatism	..	..	1	1	1	1	2	2	1	6	15	5	..	19	16	35
Gout	..	..	..	..	.	.	..	..	3	6	2	1	..	10	2	12
Cancer	.	1	..	2	4	2	19	45	94	134	98	33	5	186	251	437
Diabetes Mellitus	..	..	..	.	1	2	2	3	5	11	3	4	..	12	19	31
Purpura Hæmorrhagica	..	2	1	..	..	..	..	..	..	..	..	..	..	3	..	3
Hæmophilia	..	1	..	..	1	..	..	1	1	..	..	..	..	2	2	4
Anæmia	2	1	..	2	1	1	2	5	7	2	..	..	..	8	15	23
Lymphadenoma	..	..	2	1	..	..	..	..	..	..	..	..	..	2	1	3
Premature Birth	304	..	..	..	..	..	..	..	..	..	..	..	..	158	146	304
Injury at Birth	5	..	..	..	..	..	..	..	..	..	..	..	..	3	2	5
Debility at Birth	314	..	..	..	..	..	..	..	..	..	..	..	..	191	123	314
Atelectasis	32	..	..	..	..	..	..	..	..	..	..	..	..	20	12	32
Congenital Defects	59	2	1	1	1	..	2	..	..	..	..	..	..	33	33	66
Want of Breast Milk	23	..	..	..	..	..	..	..	..	..	..	..	.	12	11	23
Atrophy, Debility, Marasmus	222	28	1	..	..	..	..	..	..	..	..	..	..	150	101	251
Dentition	10	13	..	..	..	.	..	..	..	..	..	..	..	10	13	23
Rickets	13	9	..	..	..	..	1	..	..	..	..	..	..	14	9	23
Old Age, Senile Decay	..	..	..	..	..	..	..	..	..	8	95	208	59	147	223	370

TABLE IV—*continued.*

Deaths Registered in or Belonging to the City of Birmingham during the Year ending December 30th, 1905.

DISEASES.	AGES.													All Ages.		
	0—	1—	5—	10—	15—	20—	25—	35—	45—	55—	65—	75—	85—	Males.	Females.	Persons.
Convulsions	128	26	1	1	..	..	..	..	..	..	..	..	..	89	67	156
Meningitis	39	51	8	4	3	..	5	8	4	5	2	..	..	66	63	129
Encephalitis	1	4	3	1	1	..	1	1	..	..	2	..	.	7	7	14
Apoplexy	..	..	..	..	..	..	2	5	11	26	31	8	5	52	36	88
Softening of Brain	..	..	..	..	..	..	1	1	2	4	13	5	..	18	8	26
Hemiplegia	..	..	..	..	..	..	..	..	7	14	9	14	3	22	25	47
General Paralysis of Insane	..	..	..	..	..	..	4	18	13	3	1	1	..	28	12	40
Other Forms of Insanity	..	..	..	..	..	..	2	1	..	6	13	7	1	18	12	30
Chorea	..	..	1	1	..	..	..	..	..	..	..	..	..	2	..	2
Cerebral Tumour	..	..	2	2	1	1	1	4	3	1	1	..	..	9	7	16
Epilepsy	..	..	2	1	..	4	6	4	5	9	3	2	..	13	23	36
Laryngismus Stridulus	2	5	..	..	..	..	..	..	..	..	..	..	..	3	4	7
Locomotor Ataxy	..	..	..	..	..	..	1	..	2	2	..	..	..	3	2	5
Paraplegia, Diseases of Cord	..	1	..	..	..	..	1	1	2	5	4	3	1	10	8	18
Cerebral Congestion	2	1	..	..	..	..	..	1	1	3	..	1	..	6	3	9
Cerebral Effusion	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	1
Cerebro-Spinal Meningitis	5	4	1	..	..	..	1	..	1	1	..	..	..	8	5	13
Neuritis	..	..	..	..	..	..	4	1	1	..	..	1	..	1	6	7
Other Diseases of Brain or Nerves	..	..	..	..	..	..	..	1	..	2	3	1	..	4	3	7
Otitis, Mastoid Disease	8	7	4	2	..	..	..	..	..	..	1	..	..	7	15	22
Diseases of Nose, Epistaxis	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Diseases of Eye	.	1	..	..	..	..	..	..	..	..	..	..	..	1	..	1
Pericarditis	..	..	..	3	2	1	..	1	..	1	1	..	..	5	4	9
Endocarditis, Valvular Disease	..	1	2	16	7	6	8	21	25	37	23	11	1	80	78	158
Hypertrophy of Heart	..	..	..	..	..	.	..	..	1	..	..	..	..	1	..	1
Angina Pectoris	..	..	..	..	..	..	1	1	1	..	3	..	..	3	3	6
Aneurism	..	..	..	..	..	..	1	1	9	5	2	..	..	15	3	18
Senile Gangrene	..	..	..	..	..	..	..	..	..	1	9	2	1	7	6	13
Embolism, Thrombosis	..	..	1	..	..	..	5	6	6	10	13	5	4	28	22	50
Phlebitis	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Varicose Veins	.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Cardiac Dilatation	..	..	1	..	..	..	..	2	3	4	6	1	..	11	6	17
Heart Disease (not defined)	8	4	4	6	9	8	15	32	55	95	74	27	1	158	180	338
Other Diseases of Heart	..	..	..	..	..	..	..	7	2	4	8	10	1	15	17	32
Atheroma	..	..	..	..	..	..	..	..	1	1	1	4	..	5	2	7
Arterio-sclerosis	..	..	..	..	..	..	..	..	2	3	..	1	..	4	2	6
Cerebral Hæmorrhage	..	..	1	..	1	..	2	13	28	45	39	32	7	77	91	168
Other Diseases of Blood Vessels	..	..	..	..	..	..	..	..	..	4	2	..	..	4	2	6
Laryngitis	4	4	1	..	..	..	..	..	1	1	..	..	..	7	4	11
Croup	..	4	..	..	..	..	..	..	..	..	..	..	..	..	4	4
Acute Bronchitis	170	90	1	2	1	1	2	5	15	24	20	14	4	167	182	349
Chronic Bronchitis	7	2	3	..	1	3	10	27	66	124	157	116	13	273	256	529
Lobar Pneumonia	16	29	2	4	2	4	19	25	18	21	15	7	1	98	65	163
Lobular Pneumonia	129	136	4	1	..	1	3	1	11	16	22	11	2	164	173	337
Pneumonia (not defined)	57	55	14	5	7	10	24	30	35	31	25	14	..	188	119	307
Emphysema, Asthma	..	..	..	..	1	1	3	5	4	4	3	1	..	15	7	22
Pleurisy	1	2	3	..	1	2	6	3	5	3	7	3	..	22	14	36
Fibroid Phthisis	..	..	..	..	..	..	..	..	..	2	2	..	..	2	2	4
Bronchiectasis	..	1	..	..	..	..	..	..	1	..	..	..	..	1	1	2
Other Dis. Respiratory system	.	..	..	..	..	..	1	1	..	1	..	..	..	2	1	3
Quinsy	..	3	1	1	..	..	1	..	..	..	..	1	..	4	3	7
Other Dis. of Mouth and Anexa	1	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1
Diseases of Œsophagus	..	..	..	..	..	..	..	..	..	..	1	..	..	1	..	1
Ulcer of Stomach and Duodenum	..	1	..	..	3	5	8	4	6	2	1	..	..	11	19	30
Other Diseases of Stomach	36	8	..	1	..	..	1	5	3	11	5	2	..	41	31	72
Enteritis	126	21	1	..	1	1	3	4	3	8	6	2	1	86	91	177
Appendicitis	..	1	5	2	2	2	6	..	4	2	1	..	..	18	7	25
Obstruction of Intestine	8	6	..	3	1	..	2	4	10	8	16	4	1	39	24	63
Other Diseases of Intestine	..	..	..	..	..	..	..	..	1	..	..	..	..	1	..	1
Cirrhosis of Liver	..	..	1	..	..	1	2	20	24	21	9	2	..	36	44	80
Other Diseases of Liver	5	..	..	..	3	1	..	4	4	9	14	3	1	16	28	44
Peritonitis	2	4	2	1	1	5	3	..	1	2	2	..	..	7	16	23
Other Dis. of Digestive system	1	1	..	..	..	..	.	2	3	2	1	..	..	5	5	10
Diseases of Lymphatic System and Ductless Glands	2	1	..	..	..	..	1	2	2	..	2	..	..	4	6	10

TABLE IV—*continued.*

Deaths Registered in or Belonging to the City of Birmingham during the Year ending December 30th, 1905.

DISEASES.	AGES.													All Ages.		
	0—	1—	5—	10—	15—	20—	25—	35—	45—	55—	65—	75—	85	Males.	Females.	Persons.
Acute Nephritis	4	7	1	2	2	4	7	13	8	12	12	..	..	41	31	72
Bright's Disease	..	..	1	..	1	.	7	18	21	34	18	4	2	61	45	106
Calculus	..	..	.	..	..	..	..	..	..	1	1	..	..	1	1	2
Diseases of Bladder and Prostate	..	..	..	..	..	..	1	..	2	6	5	11	..	22	3	25
Other Diseases, Urinary System	1	..	..	..	..	..	..	2	1	3	1	1	..	7	2	9
Diseases of Testis and Penis	..	..	..	.	..	..	..	..	..	..	1	..	..	1	..	1
Diseases of Ovaries	..	..	..	..		..	2		1	..	..	..	..	.	3	3
Diseases of Uterus and Appendages	..	..	..	..	..	.	5	5	3	1	..	.	..	..	14	14
Diseases of Vagina and External Genitals	..	..	..	..	..	..	..	..	..	..	..	..	..	..	.	..
Diseases of Breast	..	..	..	..	.	.	..	..	..	..	..	..	..	..	..	..
Abortion, Miscarriage	..	.	..	..	..	1	1	3	1	..	..	..	.	.	6	6
Puerperal Mania	..	..	..		..	1	1	..	..	..	..		..	..	2	2
Puerperal Convulsions	..	..	..	..	..	..	2	..	..	..	..	.	..	..	2	2
Placenta Prævia, Flooding	..	..	..	..	..	2	4	4	1	..	..	..	..	..	11	11
Puerperal Thrombosis	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
"Parturition"	..	..	..	..	..	1	3	5	..		..	..	..	..	9	9
Other Diseases, Pregnancy and Childbirth	.	..	..	..	..	2	4	2	1	..	..	..	..	..	9	9
Arthritis, Ostitis, Periostitis	2	5	1	1	1	.	2	2	..	4	2	..	..	12	11	23
Other Diseases, Osseous System	.	1	..	..	..	..	..	..	..	..	..	..	..	1	..	1
Ulcer, Bedsore	1	..	..	..	..	..	..	1	..	1			..	1	2	3
Eczema	3	..	..	..	..	..	..	.	1	.			..	4	.	4
Pemphigus	1	..	..	..	1	.	..	..	..	1	1	.	.	2	2	4
Other Diseases, Integumentary System	..	..	..	..	..	..	..	..	..	..	1	..	..	1	.	1
Accidents or Negligence:																
In Mines and Quarries	..	..	..	..	..	..	..	..		.	..	..	..	..	..	..
In Vehicular Traffic	..	3	3	2	..	..	1	2	..	4	1	..	1	11	6	17
On Railways	..	..	2	..	..	..	..	..	..	..	..	..	..	2	.	2
On Ships, Boats, &c.	..	..	..	..	..	..	..	..	.	..	..	.	..	..	..	..
In Building Operations	..	..	..	..	..	..	1	1	3	..	..	..	..	5	..	5
By Machinery	..	..	..	1	..	1	1	1	1	..	..	..	..	5	..	5
By Weapons and Implements	..	..	..	.	..	..	1	..	..	..	..	..	..	1	..	1
Burns and Scalds	4	32	9	3	2	1	..	3	..	1	4	..	..	22	37	59
Poisons, Poisonous Vapours	..	..	..	..	.	..	..	1	1	1	..	..	..	2	1	3
Surgical Narcosis	..	.	..	1	..	1	1	1	..	..	..	..	..	3	1	4
Effects of Electric Shock	..	.	..	..	..	..	..	.	..	..	..	..	..	..	..	..
Corrosion by Chemicals	..	..	..	..	..	..	.	..	..	..	..	..	..	..	..	..
Drowning	..	5	8	2	.	3	..	1	2	1	1	..	..	20	3	23
Suffocation, Overlaid in Bed	70	..	.	.	.	..	..	..	..	..	..	..	..	33	37	70
,, Otherwise	5	2		.	.	..	1	..	1	2	1		..	5	7	12
Falls, not specified	1	1	1	..	1	2	3	1	6	6	7	7		24	15	39
Weather Agencies	..			1		..	..	..		..	..	..		1	..	1
Otherwise, not stated	7	2	1	1	2	..	1	3	..	3	1	2		16	7	23
Homicide	2	2	1	..			3	1	1	.	..	..		5	5	10
Suicides:																
By Poison	..	..	..	.	..	1	2	4	2	5	1	..	..	10	5	15
By Asphyxia	..	..	..	..	..	..	1	..	..	..	..	..	..	1	..	1
By Hanging and Strangulation	..	..	..	.	1	1	..	5	5	4	2	1	..	15	4	19
By Drowning	..	..	..	..	..	..	1	1	..	1	..	..	..	..	3	3
By Shooting	..	..	..	..	..	..	..	1	2	..	..	..	..	3	..	3
By Cut or Stab	..	..	..	..	..	..	2	4	2	3	1	.		11	..	11
By Precipitation from Elevated Places	.	..	..	.	..	.	.	.	..	..	..	..	..		..	..
By Crushing	.	..	..	..	..	..	1	.	.	.	..	.	..	..	1	1
By Other and Unspecified Methods		.					1	.	.		.	..		1	.	1
Execution	..	..	..	.	.	.	..	..	..	..	.	.	..	..	..	..
Sudden Death, cause not ascertained							.				..					
Ill defined and unspecified causes	9	2	1				3	3	2	2	1			11	14	23
TOTALS	245	114	94	111	112	180	476	670	770	931	916	608	119	4609	4109	8718

TABLE V.

Deaths Registered in, or Belonging to, each Ward during the Year ending December 30th, 1905.

CAUSES OF DEATH.	WARDS.																			
	Rotton Park.	All Saints'.	Ladywood.	St. Paul's.	St. George's.	St. Stephen's.	St. Mary's.	St. Bartholomew's.	Market Hall.	St. Thomas'.	St. Martin's.	Edgbaston & Harborne.	Deritend.	Bordesley.	Duddeston.	Nechells.	Balsall Heath	Saltley.	Not located.	City.
Smallpox	..	..	..	..	.	..	..	..	..	..	..	..	..	1	..	..	..	..	..	1
Measles	22	25	6	5	27	17	12	15	4	6	3	4	15	10	20	20	5	11	12	239
Scarlet Fever	3	5	1	3	4	1	1	2	..	3	1	2	2	9	1	6	..	9	..	53
Typhus Fever	..	..	..	..	..	.	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Epidemic Influenza	7	3	2	5	1	2	1	3	1	..	2	10	2	7	2	3	6	6	..	63
Whooping Cough	12	13	4	5	11	14	7	14	..	3	2	3	7	15	8	15	15	11	..	159
Diphtheria, Memb. Croup	14	4	7	2	4	5	3	3	1	..	5	..	9	12	7	9	5	7	1	98
Croup	..	..	1	..	..	..	..	..	..	..	..	..	..	..	2	..	..	1	..	4
Enteric Fever	4	2	5	..	1	2	2	3	..	..	2	1	3	4	3	1	..	4	1	38
Asiatic Cholera	..	..	..	..	..	..	..	..	..	..	..	.	..	..	..	..	..	..	..	..
Diarrhœa, Dysentery	19	14	14	4	17	21	16	18	3	9	13	10	14	15	19	11	11	24	5	257
Epidem. or Zymotic Enteritis	25	17	12	5	8	17	12	26	2	8	2	6	7	8	7	27	3	14	..	206
Enteritis	12	20	2	5	16	18	6	6	4	8	5	5	7	15	4	15	14	7	8	177
Other Continued Fevers	1	2	..	..	..	..	.	1	1	.	1	1	..	..	1	..	..	..	..	8
Erysipelas	5	5	..	1	..	..	1	..	4	1	3	..	.	2	3	1	1	2	2	31
Puerperal Fever	3	1	4	..	..	..	1	1	1	..	2	2	2	2	2	1	..	1	1	24
Other Septic Diseases	2	4	1	..	1	3	..	5	1	..	4	1	2	6	1	2	1	1	3	38
Intermittent Fever and Malarial Cachexia	..	..	..	..	..	.	..	..	..	..	..	..	..	..	..	.	..	..	..	..
Tuberculosis of Meninges	4	5	11	2	1	3	2	1	1	3	4	2	4	9	2	5	2	5	2	68
Tuberculosis of Lungs	56	51	40	28	30	48	31	50	9	37	48	24	40	64	39	51	46	46	21	759
Abdominal Tuberculosis	10	8	7	3	9	8	3	2	1	2	3	..	6	7	7	13	1	2	2	94
Other forms of Tuberculosis	5	4	6	1	4	3	7	2	2	4	1	3	1	9	8	5	4	8	1	78
Alcoholism	1	3	..	..	2	.	2	1	1	..	2	..	1	3	1	1	1	..	..	19
Cancer	42	37	25	15	12	18	11	18	8	15	21	31	22	34	21	21	40	31	15	437
Premature Birth	33	34	14	8	13	17	4	23	..	9	11	11	17	44	12	21	11	19	3	304
Congenital Defects	24	24	17	5	8	13	12	29	6	22	18	14	31	43	23	42	20	51	15	417
Developmental Diseases	22	18	18	3	8	18	10	27	6	14	25	13	33	14	14	21	19	24	13	320
Old Age	29	29	12	10	23	8	13	16	3	15	16	19	19	39	13	24	18	22	42	370
Meningitis	5	7	4	3	8	11	3	8	1	1	5	6	6	8	14	8	13	15	3	129
Convulsions	11	4	10	7	4	4	4	12	4	3	4	2	10	19	18	13	12	15	..	156
Diseases of Heart	26	36	37	16	25	27	15	31	9	24	24	22	36	60	29	33	49	43	19	561
Cerebral Hæmorrhage	16	8	4	6	8	8	8	4	4	3	16	9	14	9	5	10	10	12	14	168
Bronchitis	53	59	31	33	41	55	41	70	20	22	38	23	63	70	49	59	52	67	32	878
Pneumonia	53	48	37	17	38	56	24	71	18	32	37	21	36	61	58	53	41	74	29	807
Diseases of Stomach	9	7	5	4	3	3	2	2	4	1	3	9	7	10	6	12	3	10	2	102
Obstruction of Intestines	6	1	5	1	1	2	2	2	1	2	4	4	3	7	5	4	6	6	1	63
Cirrhosis of Liver	5	5	4	6	3	1	5	2	4	3	3	5	3	10	5	2	8	6	..	80
Nephritis and Bright's Dis.	13	12	8	7	8	8	7	13	4	4	5	8	10	17	6	13	15	13	7	178
Tumours and other Affections of Female Genital Organs	4	1	1	..	..	1	1	.	..	..	2	3	1	..	..	2	1	..	..	17
Accidents and Diseases of Parturition	3	2	3	..	2	1	..	5	..	2	2	1	2	2	1	3	4	6	..	39
Accidents or Negligence	15	21	11	4	14	16	10	22	8	9	16	6	11	29	8	16	18	17	13	264
Suicides	8	5	1	2	2	..	5	4	..	4	..	3	3	5	2	1	4	3	2	54
Ill-defined Causes	..	1	1	2	..	..	..	..	..	1	..	..	4	5	..	..	3	4	2	23
All other Causes	98	73	42	26	26	36	41	56	18	45	42	61	36	98	43	44	55	44	53	937
Total Deaths	680	618	413	244	383	465	325	571	154	315	395	345	489	782	469	588	517	641	324	8718
Deaths under One Year	184	170	115	56	104	143	85	177	40	90	108	80	169	210	135	192	123	213	57	2451
Births	1372	1354	717	406	689	810	423	856	215	547	602	612	826	1607	791	1191	1091	1524	162	15795

TABLE VI.

Deaths under One Year Registered in, or Belonging to, each Ward during the Year ending December 30th, 1905.

CAUSES OF DEATH.	WARDS																			
	Rotton Park.	All Saints'.	Ladywood.	St. Paul's.	St. George's.	St. Stephen's.	St. Mary's.	St. Bartholomew's.	Market Hall.	St. Thomas'.	St. Martin's.	Edgbaston & Harborne.	Deritend.	Bordesley.	Duddeston.	Nechells.	Balsall Heath	Saltley.	Not located.	City.
Smallpox	..	..	..	..	..	..	..	..	..	..	..	..	.	..	..	..	..	..	.	..
Measles	4	5	..	1	4	..	2	1	..	1	1	1	2	2	6	1	2	4	3	40
Scarlet Fever	..	..	..	..	1	..	.	..	.	..	..	1	..	..	..	..	..	..	..	2
Epidemic Influenza	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1	..	..	2
Whooping Cough	3	3	1	3	3	4	5	8	..	1	..	2	4	11	4	10	7	3	..	72
Diphtheria, Memb. Croup	1	..	4	2	..	1	..	..	..	.	..	..	1	..	.	..	..	..	..	9
Croup	..	..	..	..	..	..	..	..	..	..	..	..			..	.	.	.	..	
Enteric Fever	..	..	..	..	..	..	..	..	..	..	..	..		1	.	.	.	..	..	1
Diarrhœa, Dysentery	16	9	11	4	14	16	12	14	2	8	9	8	10	11	16	7	8	17	4	196
Epidem. or Zymotic Enteritis	19	15	10	4	7	14	10	17	2	6	2	3	9	8	6	20	3	13	..	168
Enteritis	9	16	2	4	13	16	5	4	2	6	5	4	4	8	2	11	10	5	..	126
Other Continued Fevers	..	1	..	..	..	..	..	1	..	..	1	1		..	..	..	..	..	..	4
Erysipelas	2	2	..	..	..	..	..	..	..	.	..	..		..	..	..	1	..	..	5
Other Septic Diseases	..	..	..	..	..	..	..	..	1	..	2	1	..	2	1	1	..	..	1	9
Tuberculosis of Meninges	..	..	6	..	..	..	..	..	..	1	1	..	1	1	1	.	1	1	1	14
Tuberculosis of Lungs	..	1	1	..	1	1	..	..	..	..	..	..	1	..	..	.	..	1	..	6
Abdominal Tuberculosis	6	5	2	2	5	3	..	1	1	1	1	..	1	4	2	9	1	..	1	45
Other forms of Tuberculosis	..	..	1	..	1	..	2	..	1	1	..	..	..	1	..	..	..	3	..	10
Cancer	..	.	..	..	..	..	..	..	.	..	..	.	..	..	..	..	..	..	..	.
Premature Birth	34	33	14	8	13	17	4	23	..	9	11	12	17	43	12	21	11	19	3	304
Congenital Defects	24	24	15	4	8	12	12	29	6	22	18	14	31	41	24	11	20	50	15	410
Developmental Diseases	18	16	17	3	6	15	9	23	5	11	20	12	33	8	13	17	12	18	12	268
Meningitis	1	2	1	1	5	3	1	3	1	..	2	1	1	3	4	.	2	8	..	39
Convulsions	8	3	10	6	3	4	4	10	4	3	3	1	9	13	14	9	12	12	..	128
Diseases of Heart	..	..	.	..	1	..	..	1	..	2	1	.	..	..	1	1	1	..	.	8
Bronchitis	12	8	3	5	8	14	8	15	4	4	8	3	16	17	9	14	7	22	..	177
Pneumonia	14	8	10	2	4	14	5	18	5	7	9	7	15	18	14	14	13	18	7	202
Diseases of Stomach	2	2	..	1	..	..	1	..	1	1	2	5	4	5	2	8	..	1	1	36
Obstruction of Intestines	..	..	2	..	..	..	1	..	..	1	1	..	2	..	..	..	..	1	..	8
Nephritis and Bright's Dis.	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..	1	..	1	..	4
Accidents or Negligence	1	10	3	2	6	8	1	7	5	1	7	1	2	7	1	5	4	9	4	87
Ill-defined Causes	..	..	..	1	..	..	..	..	..	..	..	..	2	2	..		2	1	1	9
All other Causes	7	7	2	2	1	1	3	1	..	4	4	3	4	3	3	2	5	6	4	62
Total Deaths	184	170	115	56	104	143	85	177	40	90	108	80	169	210	135	192	123	213	57	245

TABLE VII.—COMPARISON OF PREVALENCE OF SICKNESS AND DEATH FROM INFECTIOUS DISEASES.

(Rates calculated per 1,000 persons on the population estimated to the middle of each year.)

Year.	Smallpox.		Scarlet Fever.		Diphtheria, Membranous Croup.		Typhus Fever.		Typhoid Fever.		Puerperal Fever.		Erysipelas.	
	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
*1890	...	...	7·31	0·49	0·69	?	0·00	...	0·66	0·14	0·03	0·00	0·97	0·04
*1891	0·11	0·02	3·42	0·21	0·48	?	...	...	0·93	0·18	0·03	0·01	0·86	0·03
1892	0·06	...	2·94	0·14	1·10	0·21	...	...	0 54	0·08	0·08	0·05	1·18	0·07
1893	2·01	0·14	3·31	0·14	0·79	0·17	0·01	...	1·00	0·19	0·11	0·08	1·75	0·05
1894	4·22	0·35	3·64	0·15	0·83	0·18	...	...	1·04	0·21	0·09	0·04	1·57	0·03
1895	0·20	0·02	6·00	0·27	1·50	0 43	...	...	0·88	0·17	0·05	0·03	1·65	0·04
1896	0·03	0·01	6·65	0·32	2·35	0·58	...	...	0·95	0·21	0·06	0·04	1·54	0·04
1897	...	...	3·81	0·19	1·41	0·32	0·00	0·00	1·06	0·18	0·03	0·02	1·16	0·04
1898	...	...	2·60	0·09	1·36	0·26	...	...	1·25	0·22	0·05	0·03	1·25	0·03
1899	...	...	2·44	0·06	1·40	0 29	...	...	1·52	0 23	0·06	0·03	1·23	0·04
1900	0·00	...	3·98	0·18	1·05	0·15	...	...	1·64	0·35	0·08	0·05	1·31	0 05
1901	...	...	6·35	0·29	1·02	0·16	...	...	1·18	0·21	0·06	0·05	1·39	0·04
1902	0 13	0·01	9·39	0·55	1·47	0·24	...	...	1·01	0·19	0·07	0·04	1·42	0·06
1903	0·47	0·02	5·33	0·27	1·66	0·25	...	...	0·65	0·12	0·06	0·04	1·21	0·04
1904	0·01	...	3·09	0·12	1·17	0·21	...	...	0 46	0·07	0·07	0·05	1·11	0·05
1905	0·07	0·00	3·11	0·10	1·29	0·18	...	...	0·39	0·07	0·07	0·04	1·10	0·06

* Prior to enlargement of City.

TABLE VIII.

NUMBER OF CASES REPORTED UNDER THE INFECTIOUS DISEASE (NOTIFICATION) ACT, 1889, DURING EACH WEEK OF THE YEAR 1905.

Week. Number.	Date of ending.	Smallpox.	Scarlet Fever	Diphtheria.	Membranous Croup.	Typhus Fever	Typhoid Fever.	Simple Continued Fever.	Relapsing Fever.	Puerperal Fever.	Cholera.	Erysipelas.	Total.
	1905.												
1	January 7th	...	13	12	1	...	5	...	...	..	...	12	43
2	„ 14th	...	18	5	1	...	4	...	...	2	...	10	40
3	„ 21st	...	27	8	1	...	1	...	...	...	...	16	53
4	„ 28th	...	28	10	1	...	1	...	...	...	...	19	59
5	February 4th	...	35	10	3	...	4	...	...	2	...	14	68
6	„ 11th	1	14	24	...	...	4	...	...	1	...	9	53
7	„ 18th	...	31	12	1	...	4	...	..	...	...	6	54
8	„ 25th	3	21	25	1	...	6	...	...	..	...	8	64
9	March 4th	...	22	21	1	...	5	..	...	...	...	12	61
10	„ 11th	1	25	20	1	...	5	..	...	2	...	10	64
11	„ 18th	2	34	14	2	...	3	...	...	...	...	9	64
12	„ 25th	1	25	13	...	..	6	...	...	...	...	8	53
13	April 1st	...	32	14	1	...	6	...	..	2	...	8	63
14	„ 8th	1	28	8	...	...	5	...	...	...	...	6	48
15	„ 15th	...	42	9	1	...	4	...	...	1	...	17	74
16	„ 22nd	...	32	7	2	...	2	...	...	...	...	4	47
17	„ 29th	...	26	11	3	..	5	...	...	...	...	15	60
18	May 6th	...	27	7	2	...	1	...	...	..	...	15	52
19	„ 13th	...	23	4	1	...	1	...	...	...	...	7	36
20	„ 20th	...	29	4	3	...	5	...	...	3	...	15	59
21	„ 27th	4	37	14	1	...	3	...	...	2	...	14	74
22	June 3rd	...	30	23	...	...	4	..	...	...	...	12	69
23	„ 10th	1	29	17	...	...	8	...	...	1	...	12	68
24	„ 17th	9	26	5	...	...	3	...	...	...	...	9	52
25	„ 24th	1	27	19	...	...	...	...	...	...	...	6	53
26	July 1st	8	18	10	...	...	3	...	...	1	...	10	50
27	„ 8th	1	26	7	1	...	4	...	...	...	...	7	46
28	„ 15th	...	54	11	1	...	1	...	...	1	..	10	78
29	„ 22nd	3	46	7	1	...	...	...	...	1	...	8	66
30	„ 29th	...	55	15	...	...	3	..	...	2	..	9	84
31	August 5th	...	42	20	1	...	1	...	...	.	...	9	73
32	„ 12th	...	28	15	...	...	1	...	...	...	...	10	54
33	„ 19th	...	31	7	...	..	1	..	...	1	...	19	59
34	„ 26th	...	21	8	...	...	4	...	...	1	...	6	40
35	September 2nd	...	31	8	...	...	4	...	...	1	...	10	54
36	„ 9th	...	17	15	1	...	1	...	...	1	...	13	78
37	„ 16th	...	46	11	...	...	2	...	..	1	...	14	74
38	„ 23rd	...	41	20		...	6	...	...	...	..	13	80
39	„ 30th	...	61	11	1	...	5	...	...	..	...	10	88
40	October 7th	...	44	15	2	...	5	...	...	2	...	8	76
41	„ 14th	...	40	19	...	...	7	...	...	1	...	19	86
42	„ 21st	...	29	15	...	..	4	...	...	1	..	15	64
43	„ 28th	...	36	15	1	...	8	...	...	2	...	10	72
44	November 4th	...	42	16	...	...	7	...	...	1	...	13	79
45	„ 11th	...	60	23	...	...	6	...	...	2	...	10	101
46	„ 18th	...	36	6	...	...	8	...	...	2	...	10	62
47	„ 25th	...	28	13	...	...	15	...	...	...	...	14	70
48	December 2nd	...	34	17	..	...	5	...	...	1	..	19	76
49	„ 9th	...	39	12	...	...	6	...	...	...	...	15	72
50	„ 16th	...	26	14	...	...	3	...	...	...	...	13	56
51	„ 23rd	...	20	9	1	...	4	...	...	...	...	14	48
52	„ 30th	...	22	5	1	...	1	...	...	2	...	14	45
	TOTALS	36	1684	660	38	...	209	...	...	40	...	595	3262

Cases removed to City Hospital:—Smallpox, 36; Scarlet Fever, 1,489; Diphtheria, 321; Typhoid Fever, 109.

TABLE IX.

Temperature of the Air and Ground, Rainfall, Sunshine, and Wind, in each Month of the Year 1905.

Observed at the Birmingham and Midland Institute Observatory, Edgbaston, by Mr. Alfred Cresswell.

Month.	Temperature of the Air.						Temperature of the Ground.		Hours of Sunshine.		Rainfall in Inches.		Days on which 0·01 Inch or more of Rain fell.	Miles of Wind.	
	Highest in the shade.		Lowest in the shade.		Mean for the Month.		Maximum at 1 foot deep.	Maximum at 4 feet deep.							
	1905.	Above or below the previous highest. *	1905.	Above or below the previous lowest. *	1905.	Above or below the average. *			1905.	Above or below the average. *	1905.	Above or below the average. *		1905.	Above or below the average. *
January ...	52·6	− 5·4	22·0	+11·2	37·9	+ 0·4	43·9	45·0	61	+ 28	0·95	− 0·95	10	10748	+ 691
February ...	56·3	− 5·6	29·4	+21·4	40·7	+ 2·8	43·3	44·0	38	− 14	0·68	− 0·93	9	10328	+1131
March ...	59·1	− 5·7	29·2	+ 7·9	43·9	+ 3·2	44·1	44·3	102	+ 15	3·52	+ 1·81	21	10840	+ 493
April	57·8	−21·2	28·0	+ 1·1	44·4	− 1·0	46·3	45·0	65	− 51	2·30	+ 0·90	15	9892	+ 588
May	71·7	− 5·9	33·7	+ 2·7	51·0	—	54·5	48·0	156	+ 17	0·28	− 1·79	3	8973	− 135
June	77·4	− 5·4	42·0	+ 4·4	58·7	+ 1·2	59·2	52·2	150	—	2·00	+ 0·01	14	8907	+ 883
July	80·3	− 7·7	48·1	+ 8·6	63·3	+ 3·3	62·2	55·1	202	+ 59	1·91	− 0·23	9	7156	−1186
August ...	70·9	−14·7	46·7	+ 5·5	57·9	− 1·2	57·8	55·2	151	+ 12	4·40	+ 1·49	14	8053	− 556
September ...	72·5	−10·3	40·3	+ 7·3	54·0	− 1·7	57·0	54·3	91	− 25	1·01	− 0·79	11	8298	+ 147
October ...	56·2	−13·8	28·8	+ 0·9	44·7	− 3·4	50·2	52·5	64	− 5	1·34	− 1·31	13	9532	+ 498
November ...	51·0	−10·6	27·0	+ 7·0	40·6	− 2·3	45·9	48·8	32	− 3	3·04	+ 0·91	15	8356	− 894
December ...	54·4	− 1·6	28·2	+13·7	40·0	+ 1·5	44·6	46·1	38	+ 9	0·83	− 1·54	9	8376	−1846

* In the eighteen years 1887–1904.

TABLE X.

Temperature and Rainfall in each Month and Year from 1895 to 1905.

MEAN TEMPERATURE.
(From Maximum and Minimum Readings.)

MONTH.	1895	1896	1897	1898	1899	1900	1901	1902	1903	1904	Average for 18 years 1887-1904	1905
	°	°	°	°	°	°	°	°	°		°	°
January ..	30·8	40·0	34·0	42·6	40·6	39·2	37·4	40·2	39·1	38·8	37·5	37·9
February	28·3	39·8	42·0	39·6	40·8	36·2	35·4	34·1	43·9	37·1	37·9	40·7
March ...	41·0	44·0	43·4	38·7	41·2	37·8	38·6	44·6	44·0	39·7	70·7	43·9
April ...	46·2	47·8	43·7	46·5	46·0	47·2	47·4	45·4	43·3	47·7	45·4	44·4
May ...	54·1	53·7	49·9	49·4	49·5	50·0	52·7	47·8	51·6	51·6	51·0	51·0
June ...	58·3	61·1	58·7	56·2	59·1	57·9	56·7	56·5	54·8	56·0	57·5	58·7
July ...	58·1	61·3	61·5	59·3	62·9	64·1	64·5	58·3	59·5	63·3	60·0	63·3
August ...	59·5	57·3	60·5	57·4	64·5	59·6	60·5	57·5	57·2	59·1	59·1	57·9
September	60·8	54·6	52·9	59·4	56·1	57·0	57·0	55·4	55·4	53·9	55·7	54·0
October	45·3	43·8	49·9	51·5	49·0	49·1	49·3	49·2	50·4	49·7	48·1	44·7
November	44·9	39·5	44·8	44·3	47·0	44·6	50·5	43·9	43·4	41·6	42·9	40·6
December	38·2	38·2	40·2	44·6	35·9	44·0	37·5	39·5	37·5	38·1	38·5	40·0
Year ...	47·1	48·4	48·5	49·1	49·4	48·9	48·1	47·7	48·3	48·0	47·8	48·1

TOTAL RAINFALL.

MONTH.	1895	1896	1897	1898	1899	1900	1901	1902	1903	1904	Average for 18 years 1887-1904	1905
January ..	3·92	1·15	1·89	0·83	3·44	3·53	1·37	1·02	1·97	2·92	1·90	0·95
February	0·32	0·56	2·54	1·47	1·99	4·28	1·34	1·60	1·41	3·80	1·61	0·68
March ...	1·91	2·68	3·14	0·63	1·02	0·70	1·76	1·59	1·63	1·54	1·71	3·52
April ...	2·37	1·33	2·02	1·85	2·40	0·92	1·95	2·49	1·64	1·12	1·41	2·30
May ...	0·82	0·21	1·20	2·62	2·20	2·09	1·11	2·95	2·67	2·25	2·07	0·28
June ...	0·89	1·91	4·13	1·06	3·28	2·41	1·84	2·40	1·66	0·46	1·99	2·00
July ...	3·25	1·25	0·95	1·29	1·10	1·74	3·13	1·59	2·14	2·50	2·14	1·91
August ...	2·75	1·74	3·81	2·57	1·08	2·89	2·13	4·43	5·16	1·85	2·91	4·40
September	0·45	4·34	2·48	0·64	2·80	0·80	0·65	1·49	2·55	1·40	1·80	1·01
October ..	2·81	2·50	1·31	2·74	2·37	3·08	1·84	2·33	6·55	0·88	2·65	1·34
November	3·41	1·26	1·96	2·51	1·49	2·40	1·23	2·28	1·65	1·37	2·13	3·04
December	1·99	3·34	2·78	2·21	1·95	4·25	1·29	1·86	1·80	1·81	2·37	0·83
Year ...	24·89	22·27	28·21	20·45	25·12	29·09	22·64	25·98	33·83	21·94	24·71	22·30

TABLE XI.

Summary of Nuisances abated and other work done during the years 1904 and 1905.

	1904.	1905.
NUISANCES.		
Houses cleansed (walls and ceilings)	1,452	1,420
Houses repaired	3,048	2,586
Houses provided with better ventilation ...	184	83
Cases of overcrowding remedied	46	54
Accumulations of water in cellars removed ...	314	272
Rain-water spouts repaired or disconnected ...	584	729
Ashpit privies converted to water-closets ...	335	382
Pan privies converted to water-closets ...	2,283	3,580
Privies and closets limewashed...	463	421
Water-closets repaired or altered	1,368	1,500
Ashplaces repaired or reconstructed	398	339
Additional water-closets provided	149	117
Additional ashtubs provided	1,691	1,538
Urinals repaired or reconstructed	135	124
Drains relaid or repaired	468	558
Drains opened and cleansed	3,820	3,505
Drains efficiently trapped	2,017	2,732
Drains in cellars disconnected from the sewer or abolished	77	56
New sinks provided	160	451
Sink drains disconnected from the sewer ...	46	19
Sink bend-pipes repaired or affixed	147	129
Premises supplied with additional drains ...	141	367
Back yards paved	85	65
Back yards repaired	295	318
Tenants made to cleanse yard and outbuildings	765	355
Washhouses repaired	239	241
Premises from which fowls have been removed	103	84
Nuisances from swine and swine styes abated	23	15
Accumulations of wash, manure, &c., removed	384	298
Other nuisances abated	111	178
Number of persons summoned	6	20
Amount of penalties	—	—
Amount of costs	£1/18/0	£4/18/6
WORK OF CLEANSING STAFF.		
Courts cleansed by arrangement	5,470	5,704
Other courts cleansed	5,571	5,942
Pan privies swilled	57,875	44,392
Ashplaces swilled	66,472	54,805

TABLE XI.—*continued.*

	1904.	1905.
Houses stripped and limewashed	111	113
Other buildings limewashed	102	58
Amount charged	£62	£47/4/0
INSPECTION OF WATER-CLOSETS.		
Number of water-closets inspected	86,774	106,724
Number found with dirty basins	13,538	10,838
Number found with dirty seats	2,667	1,450
Number found with dirty floors	2,895	1,465
Number found obstructed	2,622	2,635
Number found defective	1,023	969
INFECTIOUS DISEASES.		
Houses disinfected	3,024	3,157
Beds and bed clothes disinfected	24,706	23,559
Garments disinfected	13,167	9,946
Other articles disinfected	12,397	11,101
Persons summoned	1	2
Amount of penalties	5s.	—
Amount of costs	—	15s
SMOKE NUISANCES.		
Observations made by inspectors	13,186	10,034
Infringements reported	231	250
Manufacturers cautioned	117	128
Manufacturers summoned	98	109
Amount of penalties	£77/10 0	£69/10 0
Amount of costs	£37 17/6	£41 0/0
LODGING HOUSES.		
Number of common lodging houses	32	36
Lodgers allowed	1,854	2,012
Registered houses let in lodgings	234	247
Lodgers allowed	1,273	1,335
Visits by day to common lodging houses and houses let in lodgings	13,545	8,615
Visits by night to common lodging houses ...	830	155
Keepers summoned	37	19
Amount of penalties	£26 11 0	£14/12/6
Amount of costs	£13/8 6	£5 10/0

TABLE XI.—*continued*

	1904.	1905.
CANAL BOATS.		
Number of canal boats on register	379	383
Number of inspections made	1,182	925
Breaches of regulations remedied:		
Cases of overcrowding	15	11
Sexes not separated	5	8
Want of cleanliness	4	0
Water receptacle not provided	16	10
Not in habitable condition	6	3
Other contraventions	36	38
FACTORY AND WORKSHOP ACT.		
Factories inspected	195	728
Workshops inspected	7,321	7,130
Workplaces inspected	78	293
Homeworkers' premises inspected	628	596
Nuisances under Public Health Act:		
Want of cleanliness	933	1,786
Want of ventilation	103	94
Overcrowding	13	11
Want of drainage of floors	39	14
Premises requiring repairs	193	277
Accumulations of rubbish	225	229
Defective drains	245	390
Other nuisances	153	277
Sanitary accommodation insufficient	66	115
Sanitary accommodation unsuitable or defective	365	1,321
Sanitary accommodation not separate for sexes	18	64
Offences under Factory and Workshop Act:		
Breach of special sanitary requirements for bakehouses	1	5
Failure as regards list of outworkers	14	36
Giving out work to unwholesome or infected premises	0	0
Persons summoned	2	7
Amount of penalties	£1/2/6	£2/5/0
Amount of costs	£1/5/6	£3/6/6
Number of lists of outworkers received	147	299
Number of outworkers therein	1,015	1,939
SHOP HOURS ACTS.		
Number of visits	914	1,475
Persons summoned	1	12
Amount of penalties	(Defendant	£4/0/0
Amount of costs	absconded)	£5/2/6

TABLE XI.—*continued.*

	1904.	1905.
SEATS FOR SHOP ASSISTANTS ACT.		
Number of visits	891	654
Persons summoned	1	1
Amount of penalties	£1/0/0	£0 10 0
Amount of costs	£0/8/0	£0/8/0
DAIRIES AND MILKSHOPS.		
Dairies on the register	16	15
Milkshops on the register	2,470	2,327
Purveyors on the register	182	250
Visits to dairies	90	63
Visits to milkshops and milk stores	5,050	4,327
Dirty churns found at railway stations ...	0	1
Dirty vessels at milk shops and milk stores ...	49	20
Shops, cellars, and pantries limewashed ..	109	92
Lamp oil, fish, tripe, and vinegar businesses prohibited	25	20
Persons summoned	2	1
Amount of penalties	£0/2/0	£0/5/0
Amount of costs	£0/12/0	£0/9 0
HEALTH VISITORS' WORK.		
Number of visits...	28,692	23,304
Number of revisits	10,240	9,932
Instructions given to–		
Clean rooms	1,741	1,690
Remove filth from cellar	619	528
Destroy rubbish	675	1,354
Remove bedroom slops	3,102	2,945
Open windows	4,207	3,623
Unstop chimneys	621	637
Cleanse bedding	851	972
Use additional bedroom	527	520
Screen off beds	188	169
Get larger house	336	214
Provide additional beds	183	163
Get rid of lodgers	81	74
Wash children	622	915
Feed infants suitably	3,231	4,553
Clothe infants suitably	2,892	4,149
Obtain medical advice	827	620
Clean yard and outhouses	519	600

TABLE XII.

RETURN FOR THE PERIOD 1ST JULY, 1904, TO 30TH JUNE, 1905, RESPECTING THE VACCINATION OF CHILDREN WHOSE BIRTHS WERE REGISTERED IN THE CITY DURING THE SAID PERIOD.

	Number of Births returned in the "Birth List Sheets" as Registered.	Number of these Births duly entered in Columns I., II., IV., and V. of the "Vaccination Register" (Birth List Sheets), viz.:					Number of these Births which remained unentered in the "Vaccination Register" on account (as shown by Report Book) of			Number of these Births remaining neither duly entered in the "Vaccination Register" (cols. 3, 4, 5, 6 and 7 of this Return) nor temporarily accounted for in the "Report Book" (cols. 8, 9, and 10 of this Return).
		Col. I.	Col. II.		Col. IV.	Col. V.				
		"Successfully Vaccinated."	"Insusceptible of Vaccination."	"Had Smallpox."	"Number in respect of whom Certificates of conscientious objection have been received."	"Dead, Unvaccinated."	Postponement by Medical Certificate.	Removal to Districts the Vaccination Officer of which has been duly apprised.	Removal to places unknown or which cannot be reached; and cases not having been found.	
1	2	3	4	5	6	7	8	9	10	11
Birmingham Parish ...	7,767	6,030	26	—	18	1,040	70	57	522	4
Aston Union (within the City)	6,883	5,302	34	—	36	809	100	79	459	64
King's Norton Union (within the City) ...	1,752	1,492	9	—	16	152	24	20	35	4
Total	16,402	12,824	69	—	70	2,001	194	156	1,016	72

TABLE XIII.

ANALYSIS OF CORPORATION WATER SUPPLY.

Supplied by Mr. J. F. Liverseege, F.I.C., City Analyst.

Date of Receipt of Sample.	Place where taken.	Parts per 100,000.								Appearance in 2ft. Tube.			
		Total Solid Matter.	Free Ammonia.	Albuminoid or Organic Ammonia.	Nitrogen in Nitrates.	Oxygen Consumed in 4 hours, at 27°C (80° F.)	Chlorine in Chlorides.	Hardness (as $CaCO_3$).	Alkalinity (as $CaCO_3$).	Turbidity.*	Red.†	Yellow.†	Blue.
1905.	**CORPORATION SUPPLY.**												
Jan. 9th	1 Court, Coleman Street	39·8	·001	·006	·22	·18	1·9	28·0	16·8	0·0	0·0	1·6	0·2
Feb. 7th	8 Court, Lee Bank Road	7·2	·001	·007	·00	·21	1·1	3·0	3·5	1·0	1·2	5·4	0·4
Mar. 6th	Carlton Terrace, Waterworks Road ...	6·4	·000	·005	·00	·21	0·9	2·5	2·4	0·0	1·4	5·2	0·5
April 10th	2 Court, Lower Dartmouth Street ...	37·4	·001	·011	·11	·18	2·0	27·0	16·0	0·0	0·0	1·8	0·4
May 3rd	Back of 24 and 26, New Spring Street	7·0	·000	·005	·00	·13	1·0	3·3	3·0	0·0	0·4	2·2	0·2
June 6th	Back of 13–15, Vivian Road	6·3	·001	·006	·00	·13	1·1	3·0	2·3	0·0	0·4	2·3	0·2
July 3rd	Rear of 262 and 263, Mount Street ...	32·4	·007	·017	·05	·23	2·2	21·0	15·6	0·0	0·2	2·8	0·0
Aug. 2nd	Sandon Terrace, Prince Albert Street	6·6	·001	·007	·00	·10	1·1	3·3	2·9	0·0	0·1	1·8	0·0
Sept. 1st	Rear of 137 and 139, Peel Street ...	6·6	·001	·009	·00	·13	1·0	3·3	2·8	0·5	1·5	6·0	0·0
Oct. 2nd	Rear of 150, Hope Street	5·8	·000	·006	·00	·19	0·8	2·9	2·1	0·0	1·2	7·0	0·0
Nov. 21st	9, Church Road, Edgbaston	6·8	·001	·009	·00	·23	0·9	3·4	2·8	0·5	1·0	5·4	0·0
,, ,,	Back 193, Victoria Road, Aston ...	6·8	·000	·010	·00	·23	1·0	3·4	2·7	0·5	1·0	5·4	0·0
,, ,,	Prospect Place, Holborn Hill ...	6·8	·001	·008	·00	·23	0·9	3·4	2·7	0·5	1·0	5·4	0·0
Dec. 4th	162, Hagley Road	6·8	·001	·006	·00	·23	1·0	3·5	2·9	0·5	1·2	4·8	0·0
,, ,,	Back 170, Hockley Hill	6·9	·000	·006	·00	·23	1·0	3·5	2·9	0·5	1·0	4·8	0·0
,, ,,	2 Court, Henry Street...	6·8	·000	·005	·00	·23	1·0	3·5	2·9	0·5	1·0	4·8	0·0
Average Results, 1905 ...		12·3	·001	·008	·02	·19	1·2	7·4	5·3	0·3	0·8	4·2	0·1
,, ,, 1904 ...		28·6	·000	·008	·20	·12	2·1	17.6					
,, ,, 1903 ...		32·6	000	·013	·22	·14	2·2	21·1					
,, ,, 1902 ...		33·4	·001	·011	·23	·13	2·3	21·8					
,, ,, 1901 ...		33·1	·000	·008	·19	·12	2·3	23·5					

* "0" indicates "clear," "1" indicates "very slightly turbid."

† The colour is expressed in tintometer units. Red with an equal amount of yellow forms *orange*, yellow with an equal amount of blue forms *green*, and equal amounts of the three colours indicate *grey*.

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Council House,

Birmingham,

February 27th, 1906.

TO THE CHAIRMAN AND MEMBERS OF THE HEALTH COMMITTEE.

Gentlemen,—

For a number of years I have felt that the conditions under which children are reared on canal boats in the two or three districts where I have been brought in contact with them are such as to require some amelioration.

The vigour with which the Canal Boats Acts and the Regulations made thereunder are carried out all over this country is quite exemplary; indeed, it may be a question as to whether in many districts the boats are not over-inspected.

So far, however, as the children on canal boats are concerned, the restrictions which are at present imposed do not appear to me to go far enough in the direction of protecting the lives, health, moral character, and standard of education among such children.

With the object of getting more detailed information on the subject, I asked Dr. McCrindle, Assistant Medical Officer of Health, to enquire into the matter from the point of view of the health and welfare of the children, and he was accompanied in his visits by Mr. Broscomb, Inspector of Schools for the Birmingham Education Committee. I hereby submit reports from these two gentlemen.

In the case of Dr. McCrindle's report, his description of the conditions under which children are reared on canal boats is by no means pleasant reading. It will probably be always difficult to get accurate information as to the mortality among canal boat children, but that which the parents admitted—namely, 30 per cent.—is undoubtedly a high one, and bears out the general impression which I have had that the conditions to which these children are subjected are prejudicial.

Mr. Broscomb's report contains some striking figures. With the exception of a very limited number who are left on shore by their parents, the canal boat children grow up without being able to read or write or do the simplest and most necessary of arithmetical calculations.

The question as to whether something cannot be done in the direction of requiring that children under school age shall not be carried on canal boats except during a few months of the year is one that I would suggest for the consideration of your Committee as well as of the Education Committee.

I am,

Your obedient Servant.

John Robertson

Medical Officer of Health.

Report on the Conditions of Life under which Canal Boat Children, especially those of School Ages (5 to 14 years), are Reared.

The figures in the report, and statistics following, refer exclusively to boats occupied by one or more children at school ages.

The reserved and suspicious attitude of the canal boat people towards strangers, especially enquiring strangers, rendered it a matter of considerable difficulty to obtain reliable information in many cases, and if it were not for the general uniformity in the nature of the information gained the truth would be very difficult to arrive at. Probably the constant supervision required by the Canal Boats Acts and Regulations, and generally exercised, accounts in large part for this.

The boats examined comprise those occupied by the children, the condition of whose education forms the substance of the other part of this Report.

Sixty boats were examined, including three which were met with twice in consequence of having changed masters, and were thus occupied the second time by another family. All the boats were "narrow boats" (see Regulations of L.G.B., 1878, Article 14); none were used as "fly boats" (see Regulations, Article 8A); and all carried a "general" cargo not of such "foul or offensive" nature as to require the provision of double bulkheads. (See Regulations, Article 3H.)

The boats were inspected at the canal wharves in the City of Birmingham. They mostly belonged to one or other of the great carrying companies, and were employed in

conveying goods to and from Birmingham as far south as London, and as far north as Liverpool and Manchester. The information was obtained as the result of inspection of the boats from the point of view of the Public Health Acts and the Canal Boats Acts, as well as by interrogation of the occupants, supplemented by the evidence of the officials of the Canal Company and the trading companies, and by the reports of the Assistant Inspector of Canal Boats.

On the 60 boats thus examined 98 children at school ages were found, 52 of whom were males and 46 females; 38 children under five years old (15 males and 23 females), and 128 adults (60 males and 68 females).

This shows that 128 adults and 136 children used these boats as a dwelling—a proportion of adults to children of 16 to 17, or 100 to 106·25—and means that 48·5 per cent. were over 14 years, while 51·5 per cent. were 14 years old or younger. In drawing any conclusions from these figures it must not be forgotten that the boats were selected boats, specially selected as carrying children at school ages, and any boat not complying with this condition is excluded.

Accompanying will be found a table with a list of the boats and certain details regarding their occupation.

The boats were of an average length of 70 feet, and being "narrow boats" none of them exceeded 7ft. 6in. beam, and few came up to that measurement. About seven-eighths of their bulk forms the hold, which is usually entirely open on the top, the cargo filling it being frequently banked upwards some distance above the gunwale, and merely covered with a tarpaulin. There is no communication except by a plank laid over the cargo between the fore and after parts of the boat. The remaining part of the boat, probably about one-eighth, mostly at the stern but often

partly at the bow, forms the space allotted to the after and fore cabins. Thirty-six of the boats had both fore and after cabins, and carried 181 persons, or about five persons per boat. Twenty-four boats had an after cabin only, and carried 83 passengers, *i.e.*, about 3·5 persons per boat. The after cabin alone is used during the day, as in almost all cases it is the only one with a stove. Here all the cooking of the family is done, and in winter or during bad weather all huddle here for meals. The after cabin is on the average 5 feet from floor to ceiling, two-thirds of this height being beneath the level of the deck and one-third above it. The average length of the cabin is 8ft. 6in., and the greatest beam 6ft. 6in. This gives a rough average of 275 to 280 cubic feet for the gross capacity of the after-cabin, and after making the necessary allowance for the cabin furniture, as suggested in the Regulations, allows 220 cubic feet of free air space, or about 63 cubic feet per person. The minimum allowed by the Regulations for adults is 60 cubic feet, though less is permitted for children under twelve years.

The furniture of these cabins is of the adaptable variety. The table forms the door of a cupboard or locker in the side of the cabin, being let down like a trap door, and thus stretching across the width of the cabin and forming a table. So also with the cross-bed next to the bulk head, which closes a locker during the day in which the bed clothes are kept, and forms a board on which the bed is spread for the adults during the night. The children often sleep on the top of a side locker, which forms a bench to sit on during the day. Several other smaller lockers also exist used only as cupboards, and on the left hand of the entrance, just inside the cabin, is the iron stove.

The fore cabin, used only as a sleeping place, and usually only by one adult or two young children, is not often of

larger capacity than 100 cubic feet—80 feet being the minimum allowed by the regulations—and is only of such height as to allow a person to stand so far upright as to be able to dress without personal exposure.

When comparison is made between the amount of free air space allowed in the cabins of canal boats for each person and that permitted to each occupant of a common lodging house, a striking contrast is seen. The minimum for the latter is 300 cubic feet for each adult, and if we allow half of this for each child and presume that the number of adults and children will be about equal, we shall have 225 cubic feet of free air space for each person, while in the above boats with fore and after cabins the average is between 60 and 70 cubic feet per person, or less than one-third of what is allowed in lodging houses. In this diminished air space the canal boat child has to pass about one-third of its life.

It is necessary to point out that, comparing the conditions of life on the canal boats with those of the vessels coming under the Mercantile Marine Acts, where a similar small allowance of free air space is sanctioned, a great difference is noted. The open conditions on the coast and on the high seas contrast strongly with those on the canals in and around the manufacturing towns and districts in the interior of the country, while the foul effluvia from the canal waters have no parallel on the sea.

Means of ventilation in the canal boat cabin is provided other than the door by movable panels in the bulkhead, but this is entirely under the control of the occupants, and being just over the cross-bed, is naturally put out of use in cold or wet weather at least. One would think that all the open-air life of the daytime would be required to counteract the effects of the stuffy, confined atmosphere of the night.

So far as the cleanliness of the cabins was concerned, when the circumstances were considered very little fault could be found. The Regulations require strict inspection on this point, and insist on the frequent repainting of the inside of the cabin with a view to keeping it as fresh and clean as possible; and were this not the case the unwholesome conditions set up by the crowding together in small space by the occupants would be greatly aggravated.

It must, however, be admitted that in spite of such circumstances the physique and general health of the children examined had not apparently suffered to any great extent, and compared not unfavourably with the same class of children in the poorer parts of a large town. Out of the 60 boats examined, a history of delicacy of health of the children of school ages could only be obtained in eight—a little over 13 per cent.—and although no medical examination was undertaken, the general impression received was that the children came up to the average standard of health of their class.

Enquiries were made to find out how many children in each family had already died, and, as far as possible, what was the cause of death. Here the hesitancy and apparent inaccuracy of the replies were perhaps most marked, and an indication of the truth only could be elicited. The father of the family had usually only the vaguest idea, often the children knew nothing at all, and even the mother hesitated and contradicted herself to such an extent that it was hazardous to rely too much on her statements. In 19 of the boats it was impossible to get any information. In the remaining 41, information was obtained of the birth of 269 children, of whom 77 had died almost exclusively in infancy Thus it would appear that about 70 per cent. had survived. Still more vague were the alleged causes of death. These

were mostly stated to be diarrhœa and wasting disease in infancy, and in spite of the fact that the construction of the boats and the nature of the life of the occupants supplied an obviously constant risk to life and limb in young children, only one case of death from accident was owned to. This was the case of a boy twelve years old, who was alleged to have been drowned by falling into the canal.

When the boat is loaded the cargo is generally built up high above the deck level, and no communication exists between the fore and after cabins except by means of a narrow plank about 1ft. broad from the roof of the after-cabin to that of the fore-cabin, and the boats are never surrounded by any rail or other protection along the sides. Of course, constant use renders even young children expert in getting off and on to the boats or from one part to another when playing about or when assisting in the working of the vessel. The risks are in no way dimmished when the boat is tied up at the wharf, where every facility is offered for idle children to get into mischief by going from boat to boat, from boat to landing stage, or in and out the cargo deposited all over the wharf, and where the business of loading and unloading must often occupy the attention of even the most anxious parents. The fact that usually the canal boatman is not paid while his boat is at the wharf naturally incites him to lose as little idle time there as possible, and he is all eagerness to unload and re-load in order to get away, and has scant attention to give to his family.

For economic reasons the services of the children are greatly in demand on canal boats, and this is undoubtedly one of the strongest reasons for the apathy shown by the parents for their education. Boys and girls from six to seven years old and upwards have to drive the horses on the tow-path, often trudging mile after mile in this manner, while the

parent sits in the boat and steers. In wet weather the condition of the tow-path is usually such as to render the mere walking a matter of no small difficulty, to which must be added the driving of the horse. As time is of great value —the boatman usually being paid so much for each journey —loitering to rest is naturally discouraged, no doubt occasionally with some force. As the children get a little older they have to assist in opening and closing the lock gates, and are also entrusted with the steering, which last, though more responsible, is usually less arduous work for them. All this takes place at an age when children on shore, even in the slums, spend most of their time at school or at play. The opportunities for abuse in these circumstances can be easily imagined when, as no doubt frequently happens, the parents are lazy and drunken.

One circumstance in canal boat life cannot but strike one as very obvious, and that is the entire absence of privacy for the individual. Except when at the wharf, all individual actions take place almost necessarily in the sight of others. No conveniences are provided on the boats, and almost none on the canal side, for the performance of those physiological functions which are necessary to the individual. Men and women, youths, young girls and children are deprived of the privacy which is usually afforded to even the slum dwellers in our large cities, and it is impossible but that a growing carelessness and indifference to the moral aspect at least of such a point, which is part of the ethics of civilisation, is bred from childhood. Girls and women can hardly fail to learn from necessary custom to think less and less of personal exposure than is deemed fitting in life ashore, and the natural modesty of the sex in other matters must suffer accordingly. Personal uncleanliness is thus fostered when modesty asserts itself as far as it can, and instances of this, as well as of the lack of modesty, are everywhere apparent.

The opportunities for education allowed to children who live on canal boats are of necessity very meagre. The payment of so much per journey with no pay while in port, which seems to be the usual method adopted in these boats, causes the stay in port to be shortened as much as possible, and after unloading, the vessel is held in readiness for instant departure as soon as another load can be obtained, and there is great competition to get away as soon as possible. Often the boatman does not know at what hour he may be able to get away, and this forms in his mind ample excuse for keeping his children near him, in order that he may be able to depart at any time. Hence he evades sending them, often some distance, to school. At school, owing to their irregular attendance and backward educational condition, the children are hardly welcomed, and the inducements to acquire even the rudiments of an education are far from great. It is hardly to be wondered at that such an enormous proportion are quite unlettered. Nor does the future of these children make heavy demands on their education, although if they were kept on shore and sent to school chances of a very different future would be before them.

Parents almost invariably stated as the result of enquiry that their children would follow their lives on the canals. Such was almost the only prospect before them, and the parents desired nothing better The boys would grow up to be canal boatmen after having served a time as mates, either with their parents or on another boat, and would marry the daughters of canal boatmen and pass their family lives on the canals. Similarly it was stated that the girls had to look forward to marrying and remaining on the canals as their mothers had done, and hence their training in the management of canal boats was considered of greater importance than schooling. Occasionally it was

owned that the boys might enlist or get some rough labour on shore, while the girls might go to service. Usually, however, the kind of service was said to be that in the various small public houses and beer shops such as exist in the Black Country. In one or two instances where the children had been partly brought up on shore, and therefore had some measure of education, the parents had a certain amount of ambition beyond the average, and expected their boys would learn some trade or do some better class labouring work.

It was generally found that there was fairly constant employment for the canal boatman. In the majority of cases he is paid so much for each trip, the amount being, as a rule, in direct proportion to the length of the trip, but this ceases as soon as the boat reaches its destination, unless under special circumstances. The boats belong mostly to one or other of the firms of carriers, and are supplied, along with the horse and its fodder, to the boatman, it being necessary for him to find his own ropes (probably costing about 2s. a trip). I am informed that a trip from Birmingham to London will take five or six days, and that a boatman employed as above will receive on the average 50s. for the trip, and all canal dues paid. Out of this he has to maintain himself and his family, supply his own tow-ropes, and pay for and board any hired assistance he requires for the working of the boat. For shorter trips he receives less, and of course spends a relatively longer period in port. If he carries his family with him he has no house rent to pay, and if his wife and children can help him in the management of the boat he may have no hired assistance to pay for, and he therefore has more money to spend. The free roving existence thus offered must soon deprive him of the feelings of responsibility of the ordinary citizen, and must induce a recklessness which often degenerates into vice.

It would be quite possible for a thrifty, hard-working canal boatman of no better than average type to provide for his wife and family on shore, so long, at least, as would enable the children to obtain an ordinary education, and to be preserved in some measure during the most impressionable stage of their lives from the undesirable influences existing in canal boat life. But so long as immediate self-interest undeterred is permitting the boatman to keep his children on the canals, we shall have in our midst a section of the community which acts as a clog to our progress in modern civilisation.

There is no doubt that the Canal Boats Acts, properly enforced, have greatly altered for the better during the last twenty years the conditions of life on the canals for both adults and children, but it is quite evident that further powers are necessary before this section of the community can benefit equally with others in the advantages offered by modern legislation. It seems that nothing short of compulsory legal measures keeping the children during school ages either entirely off the boats, or at least for a good part of each year, will enable the canal boat population to come into line with the rest of our industrial community.

The compulsory Education Act seems to be almost a dead letter so far as it applies to canal boat children, and this remedy, while making it impossible for such a state of things to exist, would give opportunities for amending in almost every other way the moral and social condition of no inconsiderable section of our industrial population.

J. DOIG McCRINDLE,

Assistant Medical Officer of Health.

Report on the Educational Condition of Children Found in Connection with Canal Boats lying at Various Wharves within the City of Birmingham, 1904-5.

Accompanied by Dr. McCrindle, Assistant Medical Officer of Health, and by Canal Boat Inspector Wilson, 14 visits have been paid to various wharves, and 100 children have been seen and examined as far as circumstances would allow. Several visits have also been paid to Great Charles Street School, where children have been examined.

The age of the children is as under :—

Between	5 and 6	...	...	8
,,	6 and 7	...	...	7
,,	7 and 8	...	..	11
,,	8 and 9	...	...	13
,,	9 and 10	...	...	9
,,	10 and 11	...	...	8
,,	11 and 12	...	...	16
,,	12 and 13	...	...	17
,,	13 and 14	...	...	11
	Total	...	...	100

With few exceptions, the children belonging to boats that visit Birmingham regularly were found to be supplied with attendance books, in which Head Teachers make a record of attendance at school. The only schools, however, that appear to have any of these children are Great Charles Street National School and Floodgate Street Council School ;

the average number of attendances made by scholars attending the former school is 21 out of a possible 424 per annum ; at the latter it is only 5.

The foreman at the Shropshire Union Wharf, Crescent, looks sharply after the children frequenting that wharf, and insists on them going to school ; at other wharves nothing appears to be done in this direction.

The educational condition of these children is deplorable. With few exceptions they cannot read the simplest book used in an ordinary infants' school ; they cannot write : their knowledge of number is very meagre ; and a good many do not know the value of coins except bronze.

Fifty-four per cent. are absolutely unlettered, *i.e.*, they know no letter of the alphabet ; 11 per cent. know a few letters ; 13 per cent. know most letters but cannot read small words ; 5 per cent. can read words of two or three letters ; 5 per cent. can read fairly well a book used by ordinary children of seven years of age ; 9 per cent. can read a book used by ordinary children of eight ; and the remaining 3 per cent. can read any printed matter fairly well.

The few that have any educational equipment are those who have lived entirely ashore for a continuous period and attended school regularly. In only one case was there any anxiety on the part of parents in respect of their children's education ; indifference is the characteristic feature.

The educational opportunities of these children are few ; if *every* opportunity were taken advantage of they could not learn much, and they are not considered desirable pupils on account of their intermittent attendance.

The only hope for them, in my opinion, is by legislation in the direction of making them live ashore.

JAMES H. BROSCOMB,
District Inspector of Schools,
City of Birmingham Education Committee.

CANAL BOAT

	Registration No.	Registration Place.	No. of Persons for which Registered.	No. of Occupants found. Adults. M.	Adults. F.	Children at School Age. M.	Children at School Age. F.	Children under School Age. M.	Children under School Age. F.	Fore Cabin in Boat.	Length of Time the Children have lived on Canal Boats.
1	779	Birmingham ...	5	2	1	1	...	...	...	Yes	Born on shore, nearly all life on board since
	190	Towcester .	3½	2	...	1	...	...	...	No	Whole life ...
3	195	Uxbridge ..	3	1	1	1	1	...	...	"	Ditto ...
4	903	Birmingham ...	3	1	...	2	...	...	...	"	All their lives, except one boy who has been at school for 3 yrs.
5	161	Chester	3	.	2	...	1	.	...	"	Whole life ...
6	227	Gloucester ...	3	1	..	1	...	...	...	"	Ditto ...
7	911	Birmingham ...	1½	1	1	1	2	1	...	Yes	Ditto ...
8	91	Chester	3	...	2	1	...	...	...	No	Ditto ...
9	1011	Chester	1	1	1	1	...	..	2	Yes	Ditto ...
10	1107	Birmingham ...	4	1	1	...	1	..	...	"	Since 3 years old, except for five months
11	1012	Birmingham ...	4	1	1	2	...	..	..	..	All lives ...
12	915	Wolverhampton	3	1	1	..	1	...	1	No	Ditto ...
13	191	Towcester ..	3½	.	2	..	1	...	2	.	Ditto ..
14	1025	Birmingham ..	1	1	1	1	2	1	...	Yes	Ditto ..

POPULATION.

M. Man, W Woman, B. Boy, G. Girl.

Number of Children born in the family and number of those who have died.	How the occupants are generally accommodated.	Work done on Board by the Children (at School Ages).	REMARKS.	
?	M., W., B. æt. 7, in aft. cabin; B æt. 16 in fore cabin	Leads the horse: no work at wharf	Only very occasionsionally at school	1
6, all alive and well	All in after cabin, B. æt. 11	Leads the horse ?	Four of the children on No. 13 working in conjunction with this boat	2
8 (1 died infancy	Ditto M., W., B. (8), G. (6)	Leads the horse and steers	Four boys in another boat, 1 on shore with grandmother and at school	3
8 (2 died infancy (2 stillborn)	Ditto M., B. (13), B. (9)	Eaeh assists in every part of work	Another ehild in another boat	4
6 (1 stillborn) (3 died infancy, measles ?)	Ditto W., G. (17), G. (12)	Ditto ditto ...	All sleep in one bed (eross bed)	5
?	Ditto M., B. (13)	All the work of boat exeept loading		6
9 (2 dead: 1 æt. 4, searlatina) (1 infaney, diarrhœa)	After cabin, M., W., B. (5), B. ($\frac{1}{12}$); fore cabin, G. (12), G (7)	Drives horse ...	Three sons in another boat	7
1 (the only son of one of the two women)	In after cabin only, 2 W., B. (7)	Ditto ...		8
7 (3 died infancy)	After eabin, M., W., B. (6); fore eabin, G.(4), G. (2)	... ...	One child on shore at school	9
Adopted child, no other children	After eabin, M., W.; fore cabin, G. (12)	All work of boat except loading	Child delieate	10
5 (3 died, infaney, of diarrhœa and wasting disease)	All in aft.cabin, M., W., B. (10), B. (7)	Ditto ditto ...	Fore cabin not used	11
2, both alive ...	Ditto M., W., B. (7), B. ($2\frac{1}{2}$)	... ...	Children small and pale, look delieate	12
(See No. 2, above)	Ditto (overcrowded)	... ...		13
9 (2 died, 1 æt. 7 ? 1 æt. 19 days)	After cabin, M., W., G. (13), G. (9), Inf.: fore cabin, B. (12)	Leads horse ...	Three boys on another boat	14

CANAL BOAT

	Registration.		No. of Persons for which Registered.	No. of Occupants found.						Fore Cabin in Boat.	Length of Time the Children have lived on Canal Boats.
				Adults.		Children at School Age.		Children under School Age.			
	No.	Place.		M.	F.	M.	F.	M.	F.		
15	491	Chester	5½	1	3	1	...	...	...	Yes	All lives ...
16	46	Chester	3	1	1	1	1	..	...		Ditto ...
17	263	Uxbridge ..	4	1	1	2	1	...	1	"	Ditto ...
18	494	Chester	6	1	1	2	...	...	...	"	Ditto ..
19	494	Chester	6	2	1	2	...	...	2	"	Ditto ...
20	14	Chester	5	1	1	1	..	1	1	"	Ditto ...
21	773	Birmingham .	4½	2	1	1	1	...	2	"	Ditto ..
22	773	Birmingham ...	4½	1	1	1	1	...	2	"	Ditto ...
23	455	Chester	4	1	1	2	1	...	1	"	All their lives, but occasionally on shore for a month or two at a time
24	958	Birmingham ...	3	1	1	...	2	...	...	No	Whole life ...
25	1029	Birmingham ..	1	1	1	1	1	2		Yes	Ditto ..
26	108	Gloucester ..	3	1	..	2	..	...	...	No	Half of each year only
27	238	Brierley Hill ...	4	...	1	...	1	...	...	"	Whole life ...
28	295	Uxbridge ..	4	...	2	...	1	...	...	Yes	Since a year old

POPULATION—*continued.*

M. Man. W Woman, B. Boy, G. Girl.

Number of Children born in the family and number of those who have died.	How the occupants are generally accommodated.	Work done on Board by the Children (at School Ages).	REMARKS.	
5 (1 dead. B. æt. 11. fell off boat and was drowned)	After cabin, 3 women; fore cabin, M., B. (12)	All the work of boat except loading		15
2, none died ...	After cabin only, M., W., G. (9), B. (6)	Lead horse and steer a little		16
6 (2 died infancy)	After cabin, M, W., G (7), G. (3) : fore cabin, B. (9), B. (5)	Lead horse ...		17
?	After cabin, M., W.; fore cabin. B. (13), B. (11)	All the work of boat		18
6 (1 died æt. 2, measles)	After cabin, M., W., B. (10), G. (3), G. (1); fore cabin, M., B. (13)	Ditto ditto ...		19
4 (1 died infancy)	Aft. cabin only, M., W., B. (8), B. ($2\frac{1}{2}$), G ($\frac{8}{12}$)	B. (8) leads the horse	Children delicate looking (ricketty)	20
6 (2 died, cause ?)	After cabin, M., W., G. (8), G. (5), 2 Inf.; fore cabin, M.	Ditto (sometimes)	Overcrowded—children dirty (rickets)	21
9 (4 died — fits, measles, pneumonia, etc. ; 1 stillborn)	After cabin, M., W., B. (9), G. ($2\frac{1}{2}$) : fore cabin, G. (11), G. (4)	Elder G. and B. lead horse	Scant accommodation : 1 child looks tuberculous	22
5 (1 died infancy —fits)	After cabin, W., M., G. (9), G. (2) ; fore cabin, B. (11), B. (8)	Ditto and steer	Scant accommodation	23
?	After cabin only, M., W., G. (10), G. (8)	Drive and housework	Dog kept on board	24
8 (2 died infancy)	After cabin, M., W., G. (9), G. (2) ; fore cabin, B. (11), B. (8)	Drives horse ...	Two daughters in another boat	25
6, all alive ...	After cabin only, M., B. (13), B. (5)	Elder does share of all work	Four at home at present with mother	26
See No. 30 ...	After cabin only, W., G. (13)	Does share of all work	This boat works along with No. 30	27
9 (4 died infancy)	After cabin, 2 W. ; fore cabin, G. (8), daughter of one of the women	Cleans boat and drives occasionally	Four other children on another boat, not very strong physically	28

CANAL BOAT

	Registration.		No. of Persons for which Registered.	No. of Occupants found.						Fore Cabin in Boat.	Length of Time the Children have lived on Canal Boats.
				Adults.		Children at School Age.		Children under School Age.			
	No.	Place.		M.	F.	M.	F.	M.	F.		
29	455	Chester	4	...	2	...	2	...	...	No	Whole life ..
30	213	Brierley Hill ..	4	1	1	...	1	...	1	"	Ditto ...
31	270	Chester	4	1	1	1	...	...	1	Yes	Only a few months each year
32	1023	Birmingham ...	3	...	2	...	1	...	...	No	Whole life ...
33	191	Uxbridge ..	3	...	1	...	2	...	...	"	Ditto ...
34	191	Uxbridge ...	3	1	1	1	...	...	...	"	Ditto ...
35	1032	Birmingham ...	4	1	1	1	1	...	...	Yes	Ditto ...
36	1017	Birmingham	4	1	1	1	2	...	...	"	Ditto ..
37	481	Chester	6	1	1	1	...	...	1	"	Whole life ...
38	942	Birmingham	3	1	1	2	...	...	...	No	Ditto, but two months, at least, of each year on shore
39	119	Chester	4	1	1	...	1	...	...	Yes	Only 1½ years ...
40	236	Uxbridge ...	3	1	1	1	...	...	..	No	Whole life ...
41	1014	Birmingham ...	4	1	1	1	...	1	...	Yes	Ditto ..
42	294	Chester ...	6	2	2	1	..	...	1	"	Ditto ...

POPULATION—*continued.*

M. Man, W Woman, B. Boy, G. Girl.

Number of Children born in the family and number of those who have died.	How the occupants are generally accommodated.	Work done on Board by the Children (at School Ages).	REMARKS.	
7 (1 died infancy)	After cabin only, all 4 sisters, 2 W., G. (12), G. (9)	Each takes share in all the work	Rest of family on No. 37	29
9 (5 died infancy, diarrhœa, fits, wasting disease, etc.)	After cabin only, M., W., G. (5), G. (6)	Each takes share in most of work	Rest of family on No. 28, girls look thin, pale and delicate	30
9, all alive ...	After cabin, M., W., G. (3) (grandchild); fore cabin, B. (13)	B. steers & drives and helps at locks	Three B. boatmen, 1 a mechanic ; 2 G. in service on shore, one married on shore	31
0 (one adopted daughter)	After cabin only, 2 W., G. (12)	Takes share of all the work		32
4, all alive ..	Ditto, W., G. (12) G. (13), all sisters	Ditto ditto ...	Father, mother, adult brother in another boat	33
20 (6 died infancy)	Ditto, M., W., B. (11), (grandchild)	Takes share of most of work	All others on other boats	34
5 (2 died infancy)	After cabin, M., W., G. (6) ; fore cabin, B. (9)	B. assists with horse only	One daughter, married, on canal boat	35
?	After cabin, M., W., B. (6) ; fore cabin, G. (13), G. (9)	Elder girl steers : others assist with horses		36
See No. 29 ...	After cabin, M., W., G. (Infant) ; fore cabin, B. (13)	Drives horse and steers	Rest of family on No. 29	37
?	After cabin only, M., W., B. (13), B. (11)	Each shares all of work	Part of each year on shore	38
14 (4 died infancy)	After cabin only, M., W., G. (11)	Housework mostly : occasionally drives	None of other survivors are kept on canals	39
4 (2 died infancy)	After cabin only, M., W., B. (12)	Takes share in all work	G. (10) in another boat	40
1 (the boy at school age is adopted)	After cabin, M., W., B. (4) ; fore cabin, B (11), (adopted child)	Ditto ditto ...		41
6 (1 died infancy —fits)	After cabin, M., W., B. (14), G. (1) ; fore cabin, G. (19), B. (9)	Ditto ditto ...	Overcrowded	42

CANAL BOAT

	Registration.		No. of Persons for which Registered.	No. of Occupants found.						Fore Cabin in Boat.	Length of Time the Children have lived on Canal Boats.
				Adults.		Children at School Age.		Children under School Age.			
	No.	Place.		M.	F.	M.	F.	M.	F.		
43	838	Birmingham	3½	1	1	1	...	1	...	No	Whole life ...
44	309	Chester	6	1	1	1	2	1	...	Yes	Ditto ...
45	461	Chester	4	1	1	2	...	1	...	No	Ditto, except 15 months about 2 years ago
46	344	Uxbridge .	3	2	...	1	...	...	...	"	Whole life ..
47	901	Birmingham .	3	...	2	...	1	...	...	"	Ditto ...
48	239	Brierley Hill	4	1	1	...	3	1	1	Yes	Ditto ...
49	498	Chester	6	1	3	...	2	2	...	"	Nearly whole life, but occasionally on shore for short periods
50	190	Brierley Hill .	5	2	1	1	1	...	..	"	Whole life ...
51	754	Birmingham .	4	1	1	1	1	...	...	"	Ditto ...
52	762	Birmingham ..	3½	1	1	1	...	1	...	No	Ditto ...
53	953	Birmingham .	4	1	1	...	2	1	...	Yes	Ditto ...
54	907	Birmingham	4	1	1	2	...	1	2	"	Ditto, with occasional months on shore

POPULATION—*continued.*

M. Man, W. Woman, B. Boy, G. Girl.

Number of Children born in the family and number of those who have died.	How the occupants are generally accommodated.	Work done on Board by the Children (at School Ages).	REMARKS.	
? 5 alive ? dead...	After cabin only, M., W., B. (13), B. (2)	Takes share in all work	3 G. at present on shore, and so for last 3 months. No boat at present; usually on the canals	43
6 (2 died infancy)	After cabin, M., W., B. (7), B. (1); fore cabin, G. (8), G. (5)	?	G. (8) has talipes and stops at home occasionally for months, when she goes to school. All look pale and delicate	44
6 (3 died infancy)	After cabin, M., W., B. (10), B. (5), B. (2)	Eldest boy drives and steers		45
Child not with his parents, hir'd for this cruise	After cabin, 2 M., B. (12), (hired)	Shares all work of boat	This child is hired from his parents for this cruise; parents on another canal boat	46
? Ditto ditto ...	After cabin, 2 W., G. (11), (hired)	Ditto ditto ...	Ditto ditto	47
5, all alive ...	After cabin, M., W., G. (5), B. (3), G. (1); fore cabin, G. (8), G. (11)	Eldest takes share in most of boat-work	Overcrowded	48
8 (2 died infancy)	After cabin, M., W., G. (11), G. (5), B. (3), B. (1); fore cabin, 2 adult daughters	Eldest child (at school age) assists at housework		49
14 (11 died, nearly all in infancy—measles, diarrhœa, fits, etc.)	After cabin, M., W., B. (6), G. (8): fore cabin, B. (16)	?	B. (16) used to live for months at a time on shore, and was then at school	50
?	After cabin, M., W., B. (11), G. (8): fore cabin, not occupied	Boy shares all boatwork		51
5 (3 died infants; wasting disease)	After cabin, M., W., B. (9), B. (1)	Elder drives horse		52
5, all alive ...	After cabin, M., W., B. (1), G. (6); fore cabin, G. (14)	Elder girl shares all boatwork	Two girls in another boat	53
7, all alive; but 2 others stillborn	After cabin, M., W., B. (2), G. (3), G. (4); fore cabin, B. (11), B (8	Eldest boy shares all boatwork	Two others in another boat. House on shore, but cannot afford to leave children there for long periods	54

CANAL BOAT

	Registration.		No. of Persons for which Registered	No. of Occupants found.						Fore Cabin in Boat.	Length of Time the Children have lived on Canal Boats.
				Adults.		Children at School Age.		Children under School Age.			
	No.	Place.		M.	F.	M.	F.	M.	F.		
55	332	Chester	6	2	1	...	2	...	1	Yes	Whole life ...
56	350	Uxbridge ...	4	1	1	1	...	...	1	"	Ditto ...
57	799	Birmingham ..	4½	1	1	...	1	...	...	"	Ditto ...
58	722	Birmingham ..	1	2	1	1	...				Only quite recently
59	313	Uxbridge ...	4	1	2	...	2	...		"	Whole life ...
60	397	Gloucester ...	3	1	1	2	..	...	...	No	Ditto, except for short intervals of a month at a time
				60	68	52	16	15	23		
				128		98		38			
						136					
				261							

POPULATION—*continued.*

M. Man, W. Woman, B. Boy, G. Girl.

Number of Children born in the family and number of those who have died.	How the occupants are generally accommodated.	Work done on Board by the Children (at School Ages).	REMARKS.	
3, all alive ; two others stillborn	After cabin, M., W., G. (7), G. (5), G. (3); fore cabin, adult male	Elder children do housework		55
9 (2 died young; hip disease and fits)	After cabin, M., W., B. (4) ; fore cabin, B. (13)	Elder boy drives	Both children delicate. One has recently returned from hospital after six months' treatment for abscess ? fall from boat ? See No. 59.	56
?	After cabin, M., W., G. (5) ; fore cabin, not occupied	?		57
3 (2 died ; did not say of what disease)	After cabin, M., W., B. (9) ; fore cabin, B. (14), (adopted)	Learning to work boat	Elder boy adopted ; younger has been brought up on shore till a few months ago	58
See No. 56	After cabin, G. (18), G. (17), G. (9), G. (6) ; fore cabin, B. (15)	Each shares boat-work	Same family as in No. 56	59
?	After cabin, M., W., B. (12), B. (10)	Each shares driving and steering work	At school only when on shore	60